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(71) Applicant: THE PSYCHOLOGICAL CORPORATION [-/US]; 555 Academic Court, San Antonio, TX 78204 (US).

(72) Inventors: BAIR, Steven, L.; 2027 Countryridge Circle, Birmingham, AL 35243 (US). MEREDITH, Ronald, L.; 1607 Fairway View Drive, Birmingham, AL 35244 (US). TILLOTSON, Danny, R.; 514 Riviera Drive, Altamonte Springs, FL 32701 (US).

(74) Agent: HARTT, Jacqueline, E.; Allen, Dyer, Doppelt, Milbrath & Gilchrist, P.A., Suite 1401, 255 South Orange Avenue, P.O. Box 3791, Orlando, FL 32802-3791 (US).

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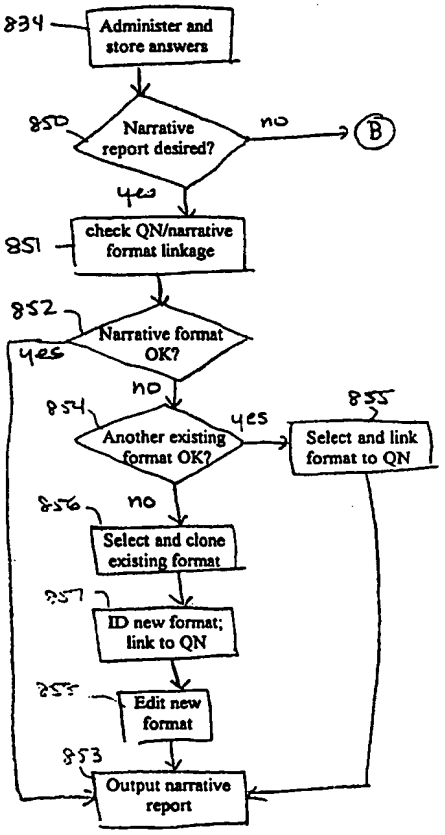
(54) Title: SYSTEM AND METHOD FOR REPORTING BEHAVIORAL HEALTH CARE DATA

(57) Abstract

The present invention relates to systems and methods for reporting behavioral health care data, and, more particularly, for creating displays and reports for aggregating data from patient treatment results. One feature permits the user to choose among patient progress indicators relative to a behavioral problem to be graphed versus time, along with one or more treatments, in order to gauge the effect of the treatment upon the behavioral problem. Another feature permits the generation of a narrative report that integrates fixed textual matter with data from the patient's electronic chart. An alternate embodiment of this feature also permits the composition of formats for a narrative report.



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SYSTEM AND METHOD FOR REPORTING BEHAVIORAL HEALTH CARE DATA

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to systems and methods for reporting behavioral health care data, and, more particularly, for creating displays and reports for aggregating data from patient treatment results.

Description of Related Art

Health information systems in general, and behavioral health information systems in particular, have been the subject of considerable development efforts. Increasing demands have been placed by regulatory agencies and "hosts," which comprise the insurance companies, health-maintenance organizations, or hospitals that typically approve and pay for a care regimen for a patient. Extensive record-keeping is required, as well as extensive forms generation, time-intensive but non-revenue-generating activities.

Behavioral health care systems share some characteristics with other types of health care systems, including the need for data handling and transfer and billing functions. However, the results achieved with knowledge gleaned from the behavioral sciences until recently have been resistant to quantification and have endured the label of being "soft." For example, it is relatively simple to deduce that a patient can in most cases be cured of a particular type of infection with a dosage of an antibiotic administered over a period of time. However, similar deductions are more difficult to achieve with a behavioral health problem: How many sessions will it take to "cure" a depressed person? What does "cure" actually mean? Therefore, it would be desirable to be able to rate a severity of a behavioral health problem and to track the patient's improvement over time, including all the variables that comprise the treatment (type and duration of therapy, medication).

In a currently typical provider environment, such as a clinic, several therapists may treat patients on an outpatient basis. On a first visit the patient spends time filling out an information sheet, including demographic (i.e., social security number, name, and address) and insurance information. This handwritten information is then transcribed by a clinic employee and entered into a locally maintained database. Following a patient session, a form is generated, either manually or via the computer, and mailed or faxed to the host. The form contains one or more

billing codes, such as those contained in the *CPT Code Table*, a widely used standard.

At the host site, the data on the form are correlated with a host database to ensure that the patient has a current policy and that the service provided is covered by that policy. This is usually undertaken by a case manager or claims adjudicator, who then either approves or disapproves the service for payment to the provider.

In the behavioral health field, a therapist typically diagnoses a patient's behavior(s) (e.g., absenteeism, acting out) and problem(s) (e.g., anxiety, depression) using the criteria set forth in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) and makes detailed handwritten chart notes expanding upon the patient's status. The DSM codes are relayed to the host, accompanied by the CPT code(s), with a request for payment and/or request for treatment approval.

Should the service recommended or provided fall outside the bounds of the patient's coverage, for example, if the patient has not improved sufficiently after a prescribed series of sessions, the provider will have to request additional sessions. Such a request may occur, for example, by sending case notes to the host, which again will have to be reviewed by a case manager.

Another area in which information systems have been applied is in treatment outcome evaluation, wherein a test or a series of tests is repeated at specified time intervals in order to monitor a patient's progress during therapy.

Yet another area of usefulness for information systems is in the establishment of a sufficiently large database to enable the calculation of average treatment outcomes. Such an evaluation is intended to provide an indication of treatment norms for a range of behavioral problems and severities. This will enable a host and/or provider to assess the relative effectiveness of a particular patient's treatment over time as compared with the norm. Such data would also be effective in aggregating results for a particular provider site (e.g., clinic) or therapist.

A health resource consumption system has been described by Mohlenbrock et al. (U.S. Pat. No. 5,018,067); an apparatus for measuring psychotherapy outcomes, by Brill (U.S. Pat. No. 5,435,324; and a microcomputer-based mental health information system, by McCullough et al. (*American Psychologist* **41**, 207-14, 1986).

There is no known system that integrates and automates all the behavioral health care

provider functions, including maintaining patient records, monitoring patient progress, performing scheduling operations, preparing billing and clinical reports, sending and receiving patient information directly online with a host system, and interfacing with an external database for amassing behavioral health care statistics. Further, there is no known interrelated host system that links multiple provider sites for managing clinical and financial data and permits automated case management, data aggregation, a treatment plan formulary, a query tool, and executive reporting capabilities.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a behavioral health care optimization system and method for integrating patient chart, previous treatment, and treatment plan information, thereby minimizing requirements for human interaction.

It is another object to provide such a system that is compatible with both a host and a provider architecture.

It is an additional object to provide such a system and method for automating approval for treatment by the host site.

It is a further object to provide such a system and method that can electronically communicate selected information to a data-collection center for amassing a database of behavioral treatment outcome data.

It is yet a further object to provide such a system and method for displaying treatment goals with medications and interventions.

It is yet another object to provide such a system and method that permit the creation of customized questionnaires and the cross-referencing of a particular common question's results.

It is yet an additional object to provide such a system and method that permit user-defined branching within a questionnaire.

These objects and others are attained by the present invention, a system and method for reporting behavioral health care data. The system preferably comprises two interrelated systems, one resident within a computer housed at the provider site, which typically includes an office of a behavioral health care worker, such as a psychiatrist, psychologist, or social worker. The provider site may also be a hospital or clinic having a plurality of therapists liked via, for example, a local-area network. The second linked system is resident in a computer at the host

site, which is typically a central office of an insurance company, health maintenance organization, or managed care organization. The host site may also be a hospital.

The provider system comprises means for performing a plurality of in-house functions, including assisting providers in electronically performing and recording clinical functions. The provider system also comprises means for displaying and entering results for one or more tests chosen from a group of empirically validated assessments and custom questionnaires. The provider system further comprises means for displaying outcome data versus time in graphical form, superimposed with medication and intervention data, and for monitoring patient progress, tracking a selected outcome measure.

Another important feature of the provider system is a means for electronically communicating with the host site computer, which permits electronically managing clinical and financial data, substantially without human intervention. Means are resident within the provider and host systems for achieving data transfer, including requests and approvals for treatment and payment, automatically, so long as the requests fall within a predetermined set of parameters resident within the host computer. Such parameters may also have been downloaded into the provider computer. Should a request not fall within this set of parameters, means are also provided for referring the request to a case manager and for transmitting the case manager's determination back to the provider system. The set of parameters for treatment typically comprise a set of rules that may be different for each plan, the rules governing, for example, how many treatment sessions are automatically granted for a particular behavioral problem reported by the patient. These rules are set at the host site and are fixed unless the host management makes a determination that a rule needs to be changed. Such a determination may be based, for example, on the results of statistics gathered from a plurality of provider sites or a change in a plan governing a particular set of patients.

The host system also includes means for tracking treatment plans and maintaining patient records. The host system also includes a database of provider profiles for use in recommending a therapist to a client based on selected criteria such as geographical location and area(s) of specialization.

The features that characterize the invention, both as to organization and method of operation, together with further objects and advantages thereof, will be better understood from the following description used in conjunction with the accompanying drawing. It is to be

expressly understood that the drawing is for the purpose of illustration and description and is not intended as a definition of the limits of the invention. These and other objects attained, and advantages offered, by the present invention will become more fully apparent as the description that now follows is read in conjunction with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flowchart of exemplary host-provider interactions.

FIG. 2 is a schematic diagram of a host-provider system configuration and the structure of a host site and a provider site.

FIG. 3 illustrates an exemplary patient list screen.

FIG. 4 illustrates an exemplary patent master screen.

FIG. 5 illustrates an exemplary medications screen.

FIG. 6 illustrates an exemplary session master screen.

FIG. 7 illustrates an exemplary session maintenance screen.

FIG. 8 illustrates an exemplary appointment information screen.

FIG. 9 illustrates an exemplary treatment plan screen.

FIG. 10 illustrates an exemplary provider plan item screen.

FIG. 11 is a flowchart of an exemplary treatment course.

FIG. 12 illustrates an exemplary problem/behavior entry screen.

FIG. 13 illustrates an exemplary problem/behavior table screen.

FIG. 14 illustrates an exemplary therapy variables table screen.

FIG. 15 illustrates an exemplary test screen.

FIG. 16 is a flowchart for choosing and creating a new questionnaire.

FIG. 17 illustrates an exemplary questionnaire screen, here an adult intake questionnaire.

FIG. 18 illustrates an exemplary select questionnaire screen.

FIG. 19 illustrates an exemplary add new questionnaire screen.

FIG. 20 illustrates an exemplary master question table screen.

FIG. 21 illustrates an exemplary select questions screen.

FIG. 22 illustrates an exemplary add new question screen.

FIG. 23 is a flowchart for the creation of a narrative report.

FIG. 24 illustrates an exemplary screen for choosing a narrative note format.

FIG. 25 illustrates an exemplary screen for editing the narrative note format.

FIG. 26 illustrates an exemplary narrative format structure, with FIG. 26A containing the first page and FIG. 26B, the second page of the format.

FIG. 27 illustrates a narrative report created from the narrative formate structure of FIG. 26A,B, with FIG. 27A containing the first page and FIG. 27B, the second page of the report.

FIG. 28 is a flowchart for behavioral outcomes measurement.

FIG. 29 is an exemplary line graph generated by the behavioral outcomes measurement system.

FIG. 30 is an exemplary bar graph generated by the behavioral outcomes measurement system.

FIG. 31 is a flowchart for creating a recipient group for sending a followup questionnaire.

FIG. 32 illustrates an exemplary screen for creating a followup questionnaire group.

FIG. 33 is a flowchart for creating a data extract from the database.

FIG. 34 illustrates an exemplary screen for building the criteria for performing the data extract.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A description of the preferred embodiments of the present invention will now be presented with reference to FIGS. 1-34.

Host-Provider Systems and Interactions

A logic flowchart of an exemplary host-provider interaction comprising obtaining host site approval for and carrying out a treatment plan for a patient is given in FIG. 1. Reference is also made to elements in FIG. 2, which illustrates an exemplary hardware and software configuration for the host-provider system **10**.

At step **801** a patient sets up an appointment at a provider site. Such an appointment can be initiated by the host or the patient. A determination is made at step **802** as to whether he/she is a new patient by checking against a patient list housed in a database **321** in the provider computer **32**. If the patient is new, a check is made at step **803** as to whether this patient's

electronic chart has already been downloaded from the host computer **20**.

It is an important feature of the present invention that a patient's demographic and treatment information can be downloaded automatically from a host site without being requested. This occurs by a patient's requesting treatment directly from the host at step **821**. The host first checks at step **822** that the patient has a policy, and whether the problem reported by the patient is covered by his policy at step **823**. The host site then checks against its provider database at step **824** to recommend a provider to the patient based upon criteria such as geographical location and provider area(s) of specialization. Then, during a subsequent connect time between that provider and the host, the patient's pertinent information is downloaded directly into the provider's database at step **825**, where it will be available for access by the provider at step **803**, along with a preapproved treatment plan (for example, 5 therapy sessions of 1-hour duration plus a course of medication for depression).

If the new patient's information has not yet been entered, an electronic chart is set up at step **831** with information provided by the patient.

Typically the patient is then assigned to a therapist at step **804**, who makes an initial behavioral diagnosis during a session using a table housed in the computer database that comprises the DSM codes. The therapist also rates the severity of the problem and enters a goal rating and a therapy treatment plan aimed at achieving that goal into the patient's electronic chart at step **805**. Alternatively, a treatment plan may have been included with downloaded patient information at step **825**, in which case it will already be resident in the patient's electronic file.

During the next connect with the host, the DSM codes and proposed treatment plan are uploaded to the host at step **806**, if the patient has indicated that he/she is insured by that host, and if that host is using the system of the present invention. At the host site, an automatic check is made at step **807** that the patient is covered. If not, the treatment plan is rejected at step **871**, and the provider is so notified during the next download. If the patient is covered, a check is next made that the proposed treatment plan falls within the applicable set of treatment approval rules at step **808**. If not, the file is referred for human intervention to a case manager at step **881**, who decides whether to approve the treatment plan at step **882**. If approval is not granted, the treatment plan is rejected and the provider is notified (step **871**). If approval is granted, or if the treatment plan fell within the preapproved rules, the host so informs the provider electronically

during a download at step **809**. Then an appointment can be scheduled for the patient with the provider at step **810**.

An approval from the host site may also contain instructions to administer one or more instruments to the patient, which should then be incorporated into the treatment plan. Such instruments, which may include tests and/or questionnaires, can also be mandated by the host to be administered at given intervals in order to gauge patient progress.

Returning to step **802**, treatment for a returning patient proceeds by calling up the patient's electronic chart at step **811** and proceeding with the scheduled session at step **812**. By the end of the session, the therapist should be able to make a determination at step **813**, whether by testing or asking a series of questions from a questionnaire, as to the patient's progress. By referring to the electronic chart, the therapist can see at step **814** whether the patient has achieved the rating chosen as a goal for the problem being treated. If the goal has been achieved, treatment can be terminated at step **815**.

If the goal has not yet been achieved, the therapist is able to check at step **816** whether there are further sessions remaining on the approved treatment plan. If there are, another appointment should be scheduled at step **817**. If there are not, the therapist will typically set up a revised treatment plan at step **818** and request approval for the new plan by returning to step **806**. This revised treatment plan request then is evaluated electronically as outlined above, only needing human intervention if the predetermined set of rules does not permit an approval of the request. In the depression example given above, the set of rules may include automatic approval for an additional five sessions of therapy if the patient has not improved to the goal rating.

It can be seen that the host-provider system **10** of the present invention significantly reduces the need for human intervention in a large proportion of situations for which a rule-based logic can be applied, only requesting the attention of a case manager under conditions that fall outside the coverage boundaries. The system contains virtually unlimited flexibility, since the rules and databases can be updated as desired.

Hardware systems. A schematic diagram of a hardware and software configuration for a host-provider system **10** of the present invention is presented in FIG. 2. Two exemplary configurations are incorporated: In one configuration a host site **20** is in direct communication with a provider site **31**, a situation that would obtain for a private practitioner in communication

with an insurance company, for example. In another configuration the host site **20** is in communication with a local area network (LAN) system **320**, which in turn is in communication with a plurality of provider sites. This situation would be found, for example, at a clinic having a plurality of therapists **36** and a central receptionist/administrator **34**. Of course, it is to be understood by one of ordinary skill in the art that each provider will likely be in communication with a plurality of host sites; that is, each provider could be approved for coverage by different insurance companies, health maintenance organizations, etc. Communication then would be initiated between a provider and that host site by whose plan a particular patient is covered. The system provides sufficient flexibility that different sets of information can be mandated and sent to different host sites, with each having its own protocol.

In either of the configurations shown, each provider system at the provider site, as illustrated for provider site **30**, comprises at least one provider computer **32**, such as a 486-DX100 (32 MB RAM, 500 MB free hard disk, and a 14.4 bps modem **33**), that may be networked via LAN **320** (10 Mb/100 Mb CAT 5 certified cable plant, Novell 3.1 or 4.1x, Windows/NT® 3.1 or higher) at the provider site **30**, for example, to a reception workstation **34** and at least one, but typically a plurality of, therapist workstations **36** (486-DX100 or higher, 16 MB RAM, 100 MB free disk space SVGA display, 800 x 600, pointing device). Reception terminal **34** may be used for performing functions such as appointment scheduling, billing, and entering demographic information and updates.

The host site **20** preferably comprises a LAN server computer **200** (486-DX100, 64 Mb RAM, 1.2 Gb HDD per 15 concurrent users) and a modem **21** (14.4 bps v. 34), with one port per 10 provider sites. The LAN specifications include 10 Mb\100Mb CAT 5 certified cable plant, Novell 3.1 or 4.1x, Windows/NT 3.51 or 4.0. The computer **200** is linked via LAN line **22** to at least one case manager workstation **23** (486-DX100, 16 Mb RAM, 50 Mb free on hard drive, Windows 3.1 or higher, SVGA display 800 x 600). This typically occurs by placing the exception record into a "review" database, which is monitored by a case manager at the host site. The case manager has access to the demographic database **201**, the provider database **202**, and the plan rules **203**.

Host computer functions. Host site **20** comprises a host computer **200** that houses a database **201** of demographic and coverage information for the host's insured participants. The

host modem **21** is configured for communication with the provider modem **33**. Typically the modems **21,33** are not in constant communication; rather, uploads and downloads are scheduled at predetermined intervals, such as after close of business. These uploads and downloads also can carry messages other than data transfer, such as e-mail messages, during the connect, thus obviating at least some of the need for telephone calls.

The host computer **200** further houses a database **202** of providers accepted for treating patients. From this database **202** the referrals discussed above (FIG. 1, step **824**) can be made to a patient desiring treatment based upon data such as geographical location and provider area(s) of specialization.

The transfer of patient information is preferably selective and hence subject to a filtering out of data not desired to be sent. For example, prior clinical data may be withheld for reasons of patient confidentiality.

The host computer **20** also houses the set of rules **203** associated with each patient's insurance plan as discussed above, which permits the host computer **20** to approve a treatment plan automatically for a particular patient and also permits the host computer **20** to approve a change in an already-approved treatment plan without seeking a case worker's approval.

In order to amass a large amount of patient treatment statistics, means are also provided for communicating selected patient data to a data-collection center **90** for building a national or regional database. Preferably patient information is filtered prior to transmission, such as by encrypting the patient's social security number, for ensuring patient confidentiality. Such a database would ultimately become sufficiently large that statistically valid conclusions could be drawn as to efficacy of various types of treatments, including patterns of interventions and medications. It is envisioned that such statistics could then be utilized to alter the rules governing preapproved treatment plans.

Treatment plans. The treatment plan individualizes and defines the instruments and processes for the course of treatment, such as tests and questionnaires, extent and type of therapy, and level of care to be administered. Additionally, it serves as an electronic filter by which all activity in the patient chart is verified as an approved component of the plan. Therefore, as discussed above, all entries into the patient chart that are in accordance with the plan are preapproved when data are uploaded to the host computer **20**.

Treatments plans may be general or specific in nature, depending upon the type of disorder being treated and the treatment approach. Treatment plans may be constructed item by item by the provider, or the provider may modify one of an existing set of treatment plan models. Treatment plans may also be downloaded from the host **20**.

Provider computer functions. Provider computer **32** houses a database **321** of patient information. Upon opening the system, which has security features such as a requirement for entry of an ID and password, a patient list screen **51** (FIG. 3) appears. The list **514** that appears may be filtered by selecting among provider **511**, patient status **512**, and level of care **513**, all of which have drop-down lists associated with them. This list **514** may also be sorted by name, social security number, chart ID number, or social security number of the insured, by selecting the desired item within the list sequence box **515**. From this window **51** the user may add a new patient record **516**, view a highlighted patient's record **517**, or delete a patient record **518**. In addition, a search can be performed by entering record information into the search box **519**.

Once a desired patient's name **520** has been highlighted, that patient's electronic chart may be viewed either by double-clicking on the name **520**, or by clicking on "View" **517**, both of which provide entry into the Patient Master module **322**.

From the patient list screen **51** the user may also navigate via icons **521** or menu bar items **522** to other sectors of the system. For example, the Scheduling **323** and Billing **325** modules are accessed via drop-down menus on the menu bar **522**.

An additional feature of the patient list screen is an icon **510** providing a link to a diagnosis table that contains diagnostic labels and criteria set by the American Psychiatric Association in the DSM for all five axes. Hyperlinked text allows the provider to move rapidly from topic to topic and to review differential diagnosis. From the DSM reference screen a complete glossary of terms is also accessible.

The patient master screen **52** (FIG. 4) is the first point of entry into a selected patient's electronic chart and includes a template having plurality of data insertion locations, such as "Last Name" **523**, including some with what are referred to in WindowsTM terms as a "combination list box" or "combo box," which contain data housed in a user-defined table. These boxes, such as "Marital Status" **524**, are for entering demographic information. This type of screen and data entry thereinto are well known in the art.

From the patient master screen **52** the user may access other areas of the patient's electronic chart via a plurality of icons positioned across the top of the screen **52**. These icons include, but are not intended to be limited to, "Patient Account" **525**, "Session Master" **526**, "Behavioral Outcomes Measurement System" **527**, "Clinician's Summary of Change" **528**, "Medications" **529**, "Tests" **530**, "History" **531**, "Treatment Plan" **532**, "Clinical Information" **533**, "Addresses" **534**, "Relationships" **535**, "Referrals" **536**, "Groups" **537**, "Employment Information" **538**, and "Insurance Information" **539**. Each of these icons provides access to another screen from which desired information may be obtained. For example, clicking on the "Medications" icon **529** brings up the screen **54** shown in FIG. 5, which lists on the left-hand side the medications **541** prescribed for the patient and, on the right-hand side, dosage data **542**. Medications may also be added **543** or deleted **544** by clicking on the appropriate screen location.

A record of all sessions is maintained within the provider computer **32**. By clicking on the "Session Master" icon **526**, the Session Master module **324** is entered, and the corresponding screen **55** appears (FIG. 6), which represents the patient's clinical, financial, and administrative information related to a treatment session. This module **324** is linked to the Schedule **323** and Billing **325** modules, so that, when an appointment is scheduled, a corresponding session entry record is created automatically. Session entry records can also be created manually.

On the Session Master screen **55** the user may view a scrollable list **551** of all patient appointments. As a selected appointment is highlighted **552**, the corresponding session information appears on the right-hand side, including the Questionnaires administered **553**, the Session Provider **554**, and the CPT/Diagnosis **555** entered by the provider for that session.

Double-clicking on an appointment **552** causes the Session Maintenance screen **56** to open (FIG. 7), which may be reviewed, edited, or entered for recording data for a new session. Within the Appointment box **560** are located the Provider **561**, Facility **562**, Date and Time of Appointment **563**, and CPT Billing Codes with Primary Diagnosis **564**. If any of this information is desired to be changed, the edit icon **565** may be clicked, which causes the Appointment window **57** to open.

The Appointment window **57** (FIG. 8) includes a session box **571** containing the same information regarding Provider, Facility, Date and Time of appointment as the Session Maintenance window **56**. Additional information is found in the CPT codes **572** and Diagnoses

573 boxes; should additional information be desired to be entered in these boxes, the Add from CPT Table 573 or Add from Diagnoses Table 574 buttons can be clicked, which launch windows containing a selection table, respectively, the Procedure Code Table or the Select Diagnosis table. The system will issue a warning if either the CPT code or the diagnosis is not approved on the patient's treatment plan. The CPT codes 572 must be linked to a Diagnosis 573 with the use of the left-pointing arrow 575, which copies the selected diagnosis under the CPT code. Without this link being made, the session cannot be posted for billing. This link is also important when it is desired to print of claim form, such as an HCFA 1500, which is used to submit claim on paper, under conditions in which billing is not performed electronically.

The treatment plan for a patient may be viewed or a new plan created by clicking on the appropriate icon 532 on the Patient Master window 52 (FIG. 4), which brings up the Treatment Plan window 58, shown containing an exemplary treatment plan box 581 in FIG. 9. When a plan is first created, by clicking on the Add button 588, a new case window appears, into which should be entered case information and additional demographic information and comments as desired. A provider can be assigned to the case by selecting one from a provider list.

A summary of managed care sessions appears on the lower right of the treatment plan window 58, with a Case Sessions box 582 and a Total Sessions box 585 containing numbers of Approved 583,586 and Used 584,587 Sessions, respectively.

In order to assign a plan element to the treatment plan, the Add button 588 is clicked on the Treatment Plan window, which brings up a list of Provider Plan Items 59 that have been approved for the chosen provider, an exemplary list being illustrated in FIG. 10. Clicking on one of these items brings up the associated screen; for example, selecting the "Medications" option 591 brings up the associated window 54 (FIG. 5).

Upon completion of a session, a billing may be initiated by returning to the Patient List window 51 (FIG. 3) and using a drop-down menu under the menu bar item "Billing" 510, from which the user may navigate to a patient accounts window, from which may be brought up for viewing such information as the patient's account ledger, insurance information, and outstanding charges. Clinical charges are automatically generated by the system upon linking a CPT code to a diagnosis and also by scheduling a new appointment. These charges can then be posted, either individually or in batch mode, by selecting the appropriate buttons within the billing

module. Upon posting, the charges are uploaded when desired to the host site **20** for processing, where they are checked for automatic approval or referred to a case manager if necessary.

This upload of patient information to the host site **20** is preferably filtered as desired by the provider **30** to include only those data to which the host is entitled, for example, the results of questionnaires and/or tests specifically requested by the host treatment plan. Other data, such as session notes in narrative form, may be withheld if deemed appropriate by the provider. Alternatively, the selection of data to be sent can be defined by the system. As an example, the system may be designed to filter out such information as: provider personal (spouse information), questionnaires and tests administered that do not belong to the host and the clinician's personal notes.

Patient Treatment

Once the patient demographic data and treatment plan are resident in the provider computer **32**, treatment can be initiated. A flowchart of an exemplary course of treatment is illustrated in FIG. 11, which expands upon step **812** of FIG. 1.

In step **811**, the therapist looks up the patient's electronic chart, from which the treatment plan is looked up in step **830**. The treatment plan (FIGS. 9 and 10) may include such features as a diagnosis, recommended medication, and a determination of level of care (e.g., outpatient), problem(s), behavior(s), therapy variables, tests, and questionnaires.

If a test is scheduled (step **831**), it should be administered and scored (step **832**); if a questionnaire is scheduled (step **833**), it should be administered and the results stored (step **834**).

The therapist should also determine if a new element is needed in the treatment plan (step **835**), and add it if needed (step **836**); if an element should be edited (step **837**), this should be performed (step **838**). Finally, the problem(s) should be evaluated at step **813**.

It should be noted that, if a new element is deemed by the therapist to be needed, approval may need to be sought from the host. This occurs as indicated in FIG. 1, beginning at step **808**.

From the Session Maintenance screen **56** (FIG. 7) the provider can access and edit any of a set of linked screens related to the treatment plan:

The Medication screen **54** can be brought up by clicking the Enter button **567** in the Medication box **566**. Here the provider can review dosage, quantity, refill, start dates, expiration

dates, route of administration, reason for prescribing, and reason for discontinuing a medication. Scrolling through the medications list **541** causes the information in the respective fields to correspond to the medication selected.

The Problem/Behavior Entry screen **60** (FIG. 12) is brought up by clicking the Enter button **578** in the Problems/Therapy box **576**. Each item in the list **601** has associated with it a behavioral anchor **602** that facilitates precision in rating. The anchor can be accessed by clicking the Anchor button **603**. Upon intake, the therapist gives the patient an initial rating "I" **604** and a goal rating "G" **605**. In subsequent sessions the therapist records the most current rating "✔" **606**, and the previous rating "P" **600** is also displayed.

Behaviors/problems can be added to the treatment plan by clicking the Add button **607**, which brings up a Problem/Behavior Table **61** (FIG. 13), can be deactivated **608** if goal attainment has been achieved, or can be reactivated **609** if problems/behaviors reemerge.

The Problem/Behavior Table **61** (FIG. 13) is used to add and rate items for the Problem/Behavior Entry screen **60**. Once a particular behavior **611** is selected from the list **615**, the Add button **612** is clicked. The letter "F" next to a behavior name indicates that it is measured by frequency; the letter "S," by severity. The anchors are viewed for the selected behavior by clicking the View Anchors button **613**; likewise for the Linked Behaviors button **614**. The problems list **615** comprises a tree-structured table, wherein subentries are displayed upon selecting a higher-level head.

The Therapy Information screen **62** (FIG. 14) is brought up by clicking the Enter button **577** in the Problems/Therapy box **576** of the Session Maintenance screen **56**. Four types of information are available for describing or rating the therapy process: case complexity (not shown), which may be rated on a 1-5 Likert scale; therapist level of experience with various issues or interventions used in the session **621**, also rated on a 1-5 Likert scale; common factors in psychotherapy **622**, comprising 22 events that can take place in various types of psychotherapy, selected ones of which ratable as to their relative contribution to the effectiveness of a given session; and therapy types **623**, wherein the relative significance of various generic interventions or specific techniques associated with various schools of thought are rated to assess the relative contribution of the effectiveness of a given session.

As shown in FIG. 11 at step **832**, the patient's treatment plan may comprise an

administration of one or more tests, perhaps readministered at a preselected interval. The Test screen **63** (FIG. 13) is brought up by clicking the Entry button **569** in the Test/Questionnaire box **568** of the Session Maintenance screen **56**, and displays patient scores for tests recorded in a view-only format. Typically the test will have been administered separately, such as on paper, scored, and the results entered by clicking the Edit button.

The patient's treatment plan additionally may comprise an administration of one or more questionnaires, which here are defined as an instrument comprising items selected from a database of questions. The system of the present invention permits virtually unlimited flexibility in using, modifying, and creating such questionnaires. One feature is the ability to transmit questionnaires between the host and the provider; for example, a host may download a questionnaire for administration to a particular patient, in which case that questionnaire will become a part of the provider's database. The host may further designate that questionnaire as copyright protected, in which case that questionnaire would not be approved for use for patients not covered by that host. Likewise, a provider can create and indicate as copyright protected its own questionnaire(s) and prevent their being uploaded to a host site.

A flowchart of the process of choosing and creating a questionnaire is given in FIG. 16.

If a questionnaire is scheduled, which is indicated by the "yes" answer to decision step **833** of FIG. 11, and if the therapist determines that the scheduled questionnaire is adequate at step **840**, it is administered as indicated at step **834** in FIG. 11. An example of a questionnaire screen in the database is shown in FIG. 17, an adult intake questionnaire.

The questionnaire template **66** comprises a Question box **661** containing a scrollable list **662** of question topics. When a topic is highlighted **663**, the associated narrative question is displayed in the Guided Entry Question box **664**. A list of answers **665** is provided in the Answer box **666**, and the correct answer **667** is highlighted and clicked to enter it as a response. The answer list **665** may comprise descriptive or informational items, some of which may permit more than one answer, or a Likert rating, allowing only one response. The N/A button **668** defaults to the answer Does Not Apply. Notepad-type narrative comments may also be entered in the Question Comment box **669**.

If, however, the scheduled questionnaire is not deemed adequate, the therapist will typically want to administer a different one, and will search the select questionnaire screen at step

841 (FIG. 18). If one among these is deemed adequate at step 842, then it should be checked if that questionnaire is usable for that patient at step 892. If it is, that one is brought up and administered as at step 834 of FIG. 11. If it is not, for example, if the questionnaire is "owned" by a different host from that covering the present patient, the questionnaire database will need to be searched again at step 841 until a usable and acceptable questionnaire is located.

Another feature of the system is that it provides a warning if the selected questionnaire is not part of the approved treatment plan. In this case, approval should be sought from the host site for its administration.

It may happen, however, that none of those among the database of questionnaires is considered adequate, in which case a new questionnaire can be constructed with the tools of the present invention. A new questionnaire may be created entirely *de novo*, or edited from a cloned version of an existing questionnaire that approximates that which the therapist desires. The therapist brings up the Add New Questionnaire screen 67 (FIG. 19), gives it a name 671, number 672, style 673, and type 674 at step 843. Then questions are selected at step 844 from the master question table (FIG. 20), which contains all the questions resident at that time in the database. The master question table 64 may comprise questions initially resident the system, questions mandated by the host, and/or questions created by the provider. Each "question" within the master question table 64 contains all the possible answers that may be selected during session entry.

Each item 642 in the master question table 64 falls within one of six functional categories 641, comprising: single-answer questions, Likert-scaleable questions, multiple-answer questions, comment-only questions, calculation questions, and headers. Single-answer questions may include those requiring a yes/no answer, or a quantification of a characteristic, such as "ability to make work decisions." Multiple-answer questions allow for more than one answer, such as symptoms experienced. Comment-only questions permit narrative text to be entered. Calculation questions display the results of calculations such as test score summaries. Headers are used to indicate a new area of questioning that will appear in a narrative note, to be discussed in the following.

A question is chosen from the master question table 64 using the Select Questions screen 68 (FIG. 21), from which the questions 681 are chosen and added at step 845 to the new

questionnaire. If the questionnaire is now acceptable (step **846**), it can be administered as at step **834** in FIG. 11.

Another feature of the system of the present invention is that the user can also program in a custom guided-entry pattern, wherein the answer to a question determines whether the next question in sequence is asked. For example, if the patient has no history of alcohol abuse, the alcohol-related questions will be skipped.

It may also happen that questions are desired to be entered into the new questionnaire that are not a part of the master question table, determined at step **846**. In this case new questions are composed at step **847** with the use of the Add New Question screen **69** (FIG. 22), by naming the question **691**, forming the verbiage of the question **692**, indicating whether it is Likert scaleable **693**, what the entry option is **694**, and what the question type is **695**.

The questionnaire should now be in a form desired, and it can be administered as at step **834** in FIG. 11.

Reporting of Behavioral Health Care Outcomes

Individual Patient Reporting. The system of the present invention permits great flexibility in extracting and presenting data sorted and aggregated as directed by the user, whether the provider or host. Reports can be prepared directed to any one particular patient or with the use of cross-tabulations to collect data from a plurality of patients.

One of the reporting vehicles resident within the system comprises a means for forming and outputting a narrative report from a patient's data already entered into the system, as shown in the flowchart of FIG. 23. This figure proceeds from the step **834** of administering a questionnaire and storing the answers in FIG. 11, if a narrative report is desired (step **850**).

A narrative note format serves as the framework for outputting a narrative note. Each format is linked to a particular questionnaire (QN), although a questionnaire can be administered without choosing or creating a narrative note format. The linkage can be checked by accessing the questionnaire/narrative linkage screen (step **851**), which is a read-only list. If the linked narrative note format is acceptable as is (step **852**), the narrative report can be output, for example, to a printer or to a file, or it can be previewed on the screen (step **853**).

If the linked format is not acceptable, another existing format can be looked up (step **854**)

on the narrative notes format screen **70** (FIG. 24), which lists format IDs **701** and descriptions **702**. A format is selected (step **855**) by linking the questionnaire to that format, and a report is output (step **853**) under the direction of the format elements. Alternatively, a format that is close can be selected, cloned, and edited, or a new one can be created *de novo*. Preferably the therapist selects and clones an existing format (step **856**) such as the "New Clinical Report Format," which is set up as a template and is resident in the system and on which can be built a new narrative format. The new format is identified with a new name, description, and link to a questionnaire at step **857** and edited in the Edit Narrative Format screen **71** (FIG. 25) at step **858**.

Each format contains a series of discrete sentences that have words in angle brackets indicative of a datum that will be inserted from the patient's electronic chart when the report is output. For example, in the editing box **711** of FIG. 25, ⟨@Name (Last)-Patient@⟩ would fetch the patient's last name from the chart and insert it at that point in the narrative.

Editing the displayed format is accomplished by clicking on the appropriate icon from the tool bar menu **712** in FIG. 25. For example, selecting the "insert sentence" icon **713** permits the user to insert a title or new sentence into the format; similarly for the "insert word" icon **714**. A narrative form of a question can also be inserted by selecting the "insert question" icon **715**, which brings up a screen containing all the questions resident in the system and from which the answers thereto can also be accessed to ensure that they make sense in the context of the narrative.

Additionally, behaviors can be inserted by selecting the appropriate icon **716** that have been targeted for treatment for the patient. A summary is added into the narrative, including ratings such as goal and current session, goal and rating the last five sessions, or a description only.

The answers for selected questions can be used to create calculation fields within a questionnaire. Calculations can be performed within a narrative format utilizing Likert scales by selecting the "insert formula" icon **717**, which brings up a window permitting the user to create an arithmetic formula for aggregating question results, the result of which calculation is inserted into the narrative format at the chosen location. Similarly, test results can be inserted by selecting the "tests" icon **718**.

An example of a narrative format and the resulting narrative report for a particular patient

is shown in FIGS. 26A,B and 27A,B, respectively. It should be noted that the report need not be output at each administration of the questionnaire, but it can be output whenever desired.

An indication of how the system creates a report is provided by comparing the narrative note format shown in FIGS. 26A,B with the corresponding output report shown in FIGS. 27A,B. For example, item **261** reads: ⟨@Mr. or Mrs.-Misc.@⟩ ⟨@Name (Last possessive)-Patient@⟩ attitude was ⟨@Attitude-Client@⟩. To create this sentence the system thus must retrieve three data items from the patient's electronic chart, and yields the report sentence **271**: Dr. Sample-Patient's attitude was overly solicitous, provocative and resistive.

Another important feature of the present invention is a behavioral outcomes measurement (BOM) system, which comprises a means for graphically tracking problem and behavior Likert ratings and questionnaire Likert ratings for a particular patient. In addition, the medications and types of interventions can be superimposed upon the graphs, permitting great flexibility in outcomes presentation.

A flowchart of the BOM system is presented in FIG. 28. Typically such a graph will be desired following a plurality of treatment sessions, such as after a problem evaluation at step **813** of FIG. 1.

There are two types of graph that can be made with a preferred embodiment of the system of the present invention, although these types are not intended to be limiting: a line graph **74**, such as illustrated in FIG. 29, or a bar graph **75**, such as illustrated in FIG. 30. Which graph type is desired is chosen at step **860**. Other options are also available, such as color and the time span and dates to be visualized.

The therapist can make decisions for graph elements by selecting the appropriate icon from the tool bar menu on FIGS. 29 and 30. Those referred to herein are shown in FIG. 29. The therapist can decide whether to graph problems and behaviors at step **861**; if so, one or more is selected at step **862** for presentation (icon **741**). A decision whether to graph Likert-scaled questionnaire items is made at step **863**; those desired are selected at step **864** (icon **742**). A decision whether to graph interventions and/or therapies is made at step **865**; those desired are selected at step **866** (icon **743**). Finally, a decision whether to graph medications is made at step **867**; those desired are selected at step **868** (icon **744**). The graph is generated at step **869**.

It should be noted that these decision steps need not occur in the order presented in FIG.

28. In FIGS. 29 and 30 are the line graph and bar graph for an exemplary case illustrating three items (**745**) being graphed on a Likert (1-5) scale with time and a simultaneous presentation of two medications (**746**) tracking the time during which they were being prescribed.

Followup Questionnaires and Data Extraction. Additional features of the system of the present invention comprise means for extracting and aggregating data for a plurality of patients, typically sorted by one or more criteria, for the purposes of accumulating patient statistics and thereby enabling treatment to be optimized.

The system comprises means for creating a followup questionnaire group, for performing such functions as assessing treatment, patient satisfaction, and referral source tracking, although these are not intended to be limiting. This system module can be used to create lists of patients, providers, and/or referrals who will receive a followup questionnaire, typically on hard copy via mailing. Such questionnaires can be constructed at the host or the provider site, although those issuing from the provider site will likely encompass only those patients within its database.

A new followup questionnaire group is created as illustrated in the flowchart of FIG. 31 with the use of screen **76** (FIG. 32) and the accessing of the appropriate databases described previously. First it is decided at step **870** whether an already-created questionnaire is to be used. If not, the followup questionnaire is provided with a title **761** at step **871**. A recipient group **762** is chosen at step **872**, which may include, for example, patients, providers of record, providers of session, or referrals. A sample size **763** is chosen at step **873**, which may be "all" or some maximum number, in which case the system will randomly select a group of individuals who meed the group size chosen. Finally, a time frame **764** is chosen at step **874** during which the treatment occurred.

A choice can be made at step **875** to impose additional filters, which occurs at step **876**. Sorting can be accomplished by the system on the basis of any of the tables in the database, including the master question table, questionnaires, problems, and behaviors. For example, the user can choose to select all patients receiving zoloft who have been treated for depression at a particular clinic.

Once all the choices have been made, the followup questionnaire group can be built at step **877** and mailing labels printed.

In similar fashion, data extraction can be accomplished as illustrated in the flowchart of

FIG. 33, generating files derived from queries of the databases. Thus the user can generate data extracts containing the results of searches based on user-defined specifications. The files created with this module can be imported into a spreadsheet, database, or statistical package for generating graphs and reports. As with the followup questionnaire group construction, criteria such as demographic data and clinical factors can be used to select a group of individuals for the query.

First it is decided at step **880** whether an already-created extract formula is to be used. If not, the new extract report is provided with a title at step **881**. A recipient group is chosen at step **882**, which may include, for example, patients, providers of record, providers of session, or referrals. A sample size is chosen at step **883**, which may be "all" or some maximum number, in which case the system will randomly select a group of individuals who meed the group size chosen. Finally, a time frame is chosen at step **884** during which the treatment occurred.

Next the extract file criteria are chosen at step **885** from a screen **77** illustrated in FIG. 34. This embodiment of the table comprises a tree-browser window **771**, from which criteria **772** are chosen that will form the basis for creating the extract file list (e.g., age range, patient sex, employees, etc.). This procedure builds the patient list from which specific data will be extracted.

When an item has been selected, a list of output selections are provided, from which a category of information may be chosen at step **886**. For example, if "patient medication" was chosen at step **885**, the user may select "Prozac™." Steps **885** and **886** may be repeated as needed to add filter criteria.

A choice can be made at step **887** to impose additional filters, which occurs at step **888**. Sorting can be accomplished, as for the followup questionnaire, by the system on the basis of any of the tables in the database, including the master question table, questionnaires, problems, and behaviors. Once all the choices have been made, the extract data can be built at step **889** and output to a designated file.

It may be appreciated by one skilled in the art that additional embodiments may be contemplated that are not necessarily limited to the behavioral health care arena, including an analogous system and method for any medical or occupational/physical therapy information system.

In the foregoing description, certain terms have been used for brevity, clarity, and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for description purposes herein and are intended to be broadly construed. Moreover, the embodiments of the apparatus illustrated and described herein are by way of example, and the scope of the invention is not limited to the exact details of construction.

Having now described the invention, the construction, the operation and use of preferred embodiment thereof, and the advantageous new and useful results obtained thereby, the new and useful constructions, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

What is claimed is:

1. A method for reporting behavioral health care data comprising the steps of:

providing a database including:

a plurality of numerical answers to a behavioral health assessment question administered to a patient a plurality of spaced-apart times;

a time history of at least one treatment administered to the patient;

accessing the database and selecting the answers to the question;

accessing the database and selecting a time history of at least one treatment;

displaying a graph of the answers against a time axis; and

displaying the selected time history along with the graph against the time axis, for permitting an indication of an effect of the treatment upon the answer.

2. The method recited in Claim 1, wherein the treatment is selected from a group consisting of a medication, an intervention, and a therapy.

3. The method recited in Claim 1, wherein the answer comprises an assessment of a behavioral problem.

4. The method recited in Claim 3, wherein the behavioral problem includes one or more of the behavioral conditions of depression, anxiety, hopelessness, suicide ideation, attention-deficit disorder, an eating disorder, substance abuse, and obsessive-compulsive disorder.

5. The method recited in Claim 1, further comprising the step, prior to the graph-displaying step, of selecting a type of graph to be displayed, the type of graph selected from a group consisting of a bar graph and a line graph.

6. The method recited in Claim 1, wherein the database-providing step comprises the steps of:

constructing and storing an electronic chart for the patient;

conducting a series of behavioral health care sessions with the patient;

evaluating the behavioral health of the patient by administering the question at a first session to provide an initial numerical rating and during at least one further session to provide an indication of patient progress; and

entering the answers into the patient chart.

7. A clinical information system for integrating assessment, intervention, and progress indicators in a behavioral health care program comprising:

database means for receiving one or more assessment, intervention, and progress indicators;

means with the database means for providing one or more graphic presentations of the assessment, intervention, and progress indicators; and

means with the database means for administering a questionnaire on patient status and for updating the indicator information and the corresponding graphic presentations.

8. The information system recited in Claim 7, further comprising data entry means for entering real-time patient responses to the questionnaire.

9. The information system recited in Claim 7, wherein the questionnaire includes assessments for one or more of the behavioral conditions of depression, anxiety, hopelessness, suicide ideation, attention-deficit disorder, an eating disorder, substance abuse, and obsessive-compulsive disorder.

10. A method for reporting behavioral health care and status of a patient comprising the steps of:

providing a database comprising at least one patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

providing a database including at least one narrative note format, the narrative

note format comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

selecting a narrative note format from the database;

integrating the narrative note format with the patient chart data pointed to by the link indicators; and

outputting a report comprising a narrative-style text including information specific to the patient from the patient chart.

11. The method recited in Claim 10, wherein:

the answer comprises a numerically scaled answer;

the integrating step further comprises translating the numerically scaled answer into text, for forming a narrative report having the linked assessment answer in verbal form.

12. The method recited in Claim 11, wherein the translating step comprises correlating the numerically scaled answer to an anchor.

13. The method recited in Claim 11, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating step further comprises utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

14. A method for creating a custom report on the behavioral health care and status of a patient comprising the steps of:

providing a database resident in a computer, the database comprising at least one

patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

composing a narrative note format comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

storing the narrative note format in the computer;

integrating the narrative note format with the patient chart data pointed to by the link indicators; and

outputting a report comprising the integrated narrative-style text including information specific to the patient from the patient chart.

15. The method recited in Claim 14,

the answer comprises a numerically scaled answer;

the integrating step further comprises translating the numerically scaled answer into text, for forming a narrative report having the linked assessment answer in verbal form.

16. The method recited in Claim 15, wherein the translating step comprises correlating the numerically scaled answer to an anchor.

17. The method recited in Claim 14, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating step further comprises utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

18. A system for reporting behavioral health care and status of a patient comprising:

a computer having resident therein a database comprising:

at least one patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

at least one narrative note format, the narrative note format comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

input means for displaying a list of narrative note formats in the database and for selecting a narrative note format therefrom;

software means for integrating the narrative note format with the patient chart data pointed to by the link indicators; and

means for outputting a report comprising a narrative-style text including information specific to the patient from the patient chart.

19. The system recited in Claim 18, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating means further comprises means for utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

20. A system for creating a custom report on the behavioral health care and status of a patient comprising:

a computer having resident therein a database comprising at least one patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

input means for composing and entering a narrative note format into the computer comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

software means resident in the computer for integrating the narrative note format with the patient chart data pointed to by the link indicators; and

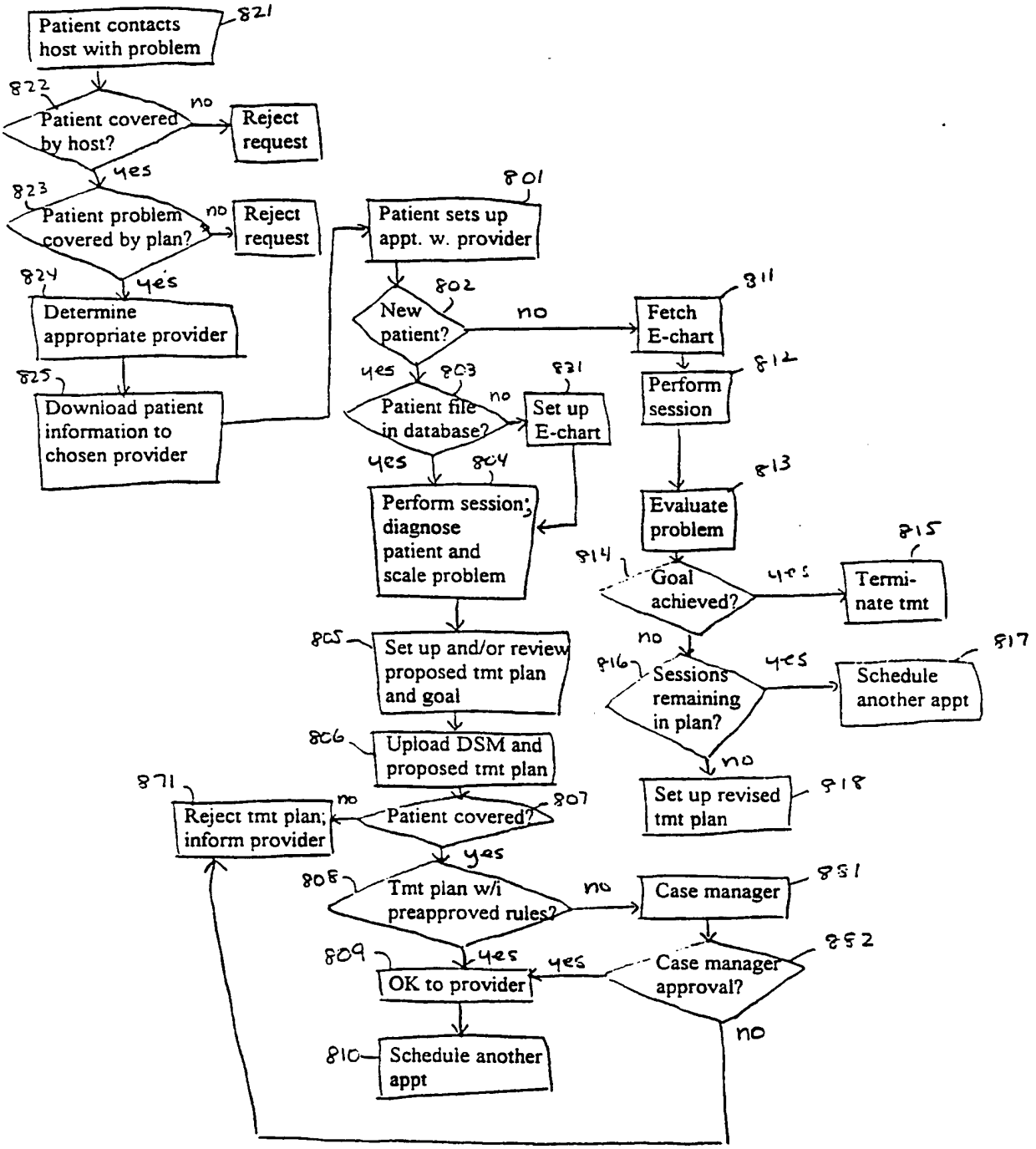
means for outputting a report from the computer comprising the integrated narrative-style text including information specific to the patient from the patient chart.

21. The system recited in Claim 20, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating means further comprises means for utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.



F16. 1

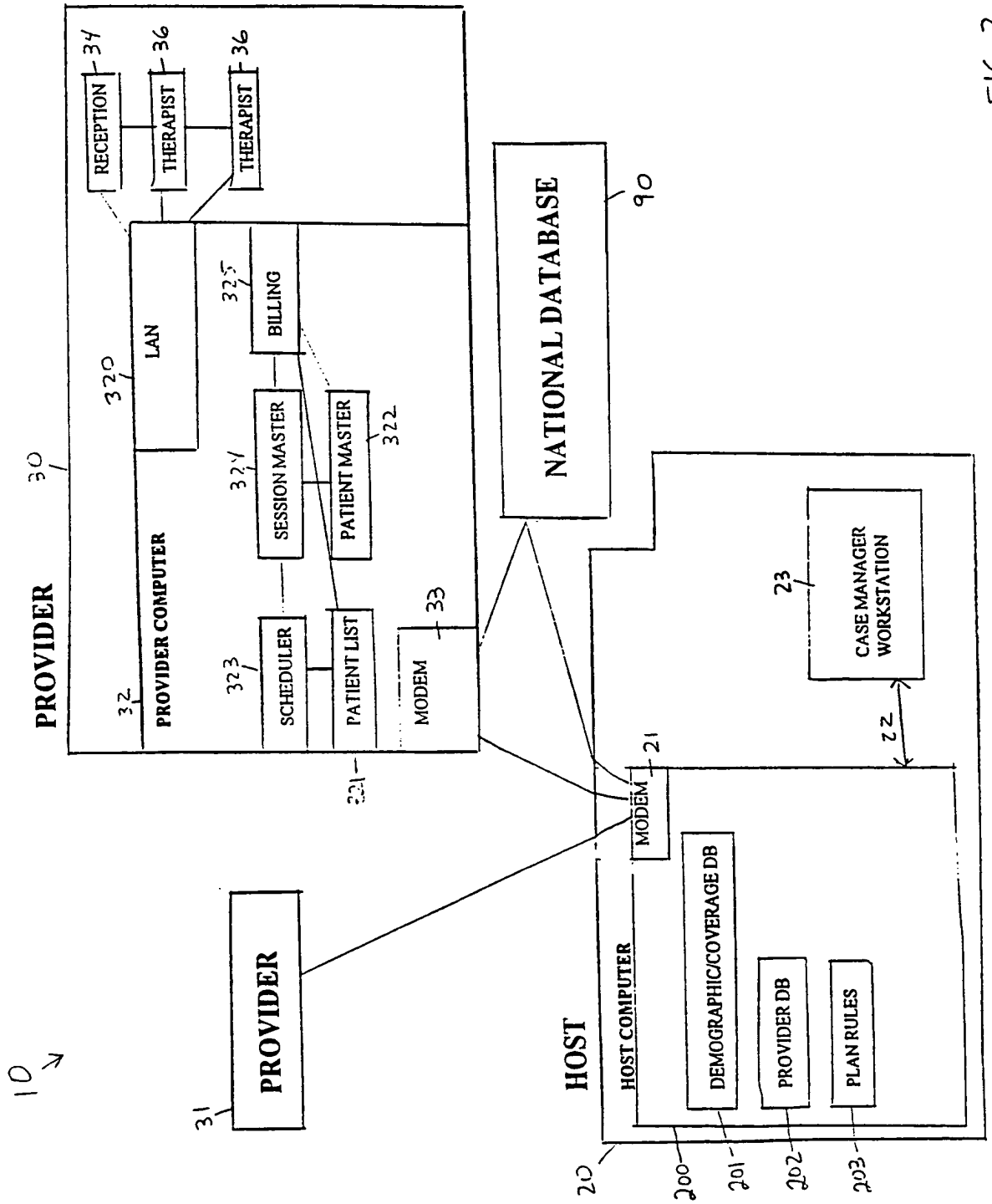


FIG. 2

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FIG. 3

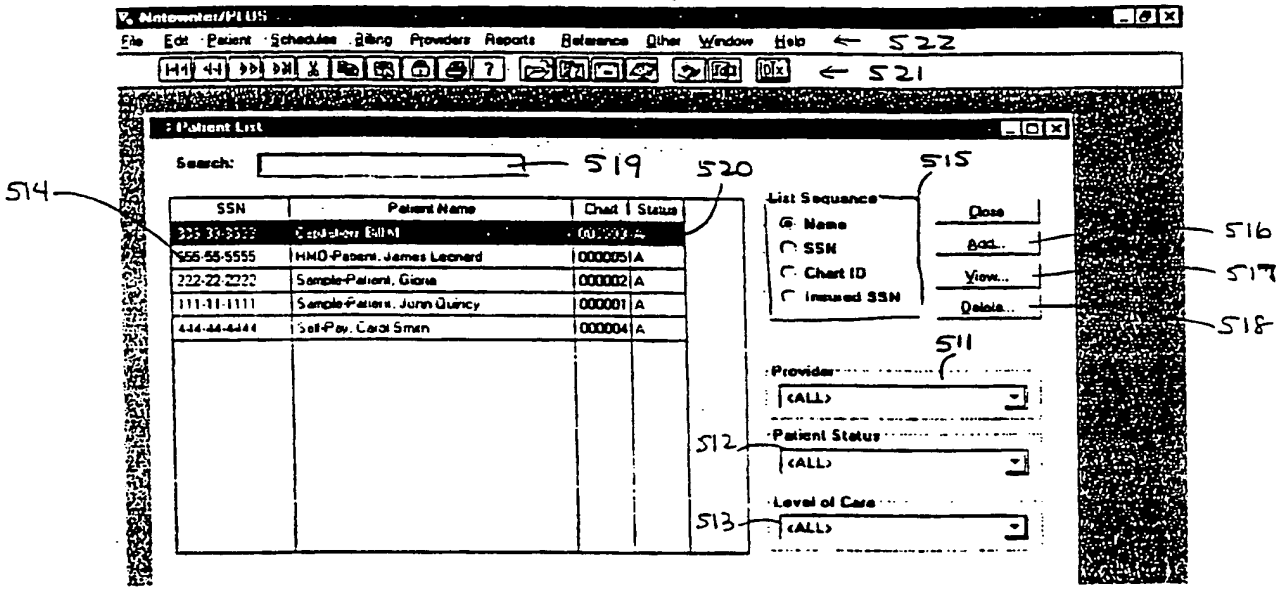


FIG. 4

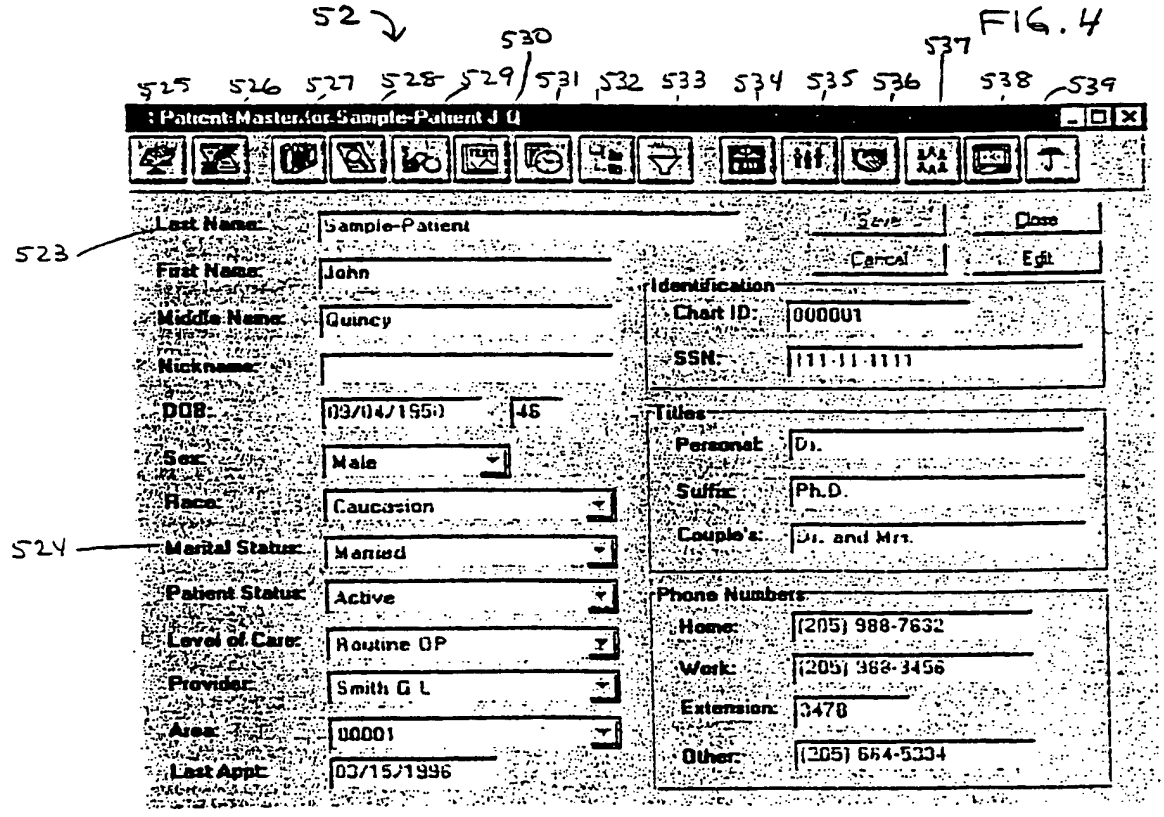
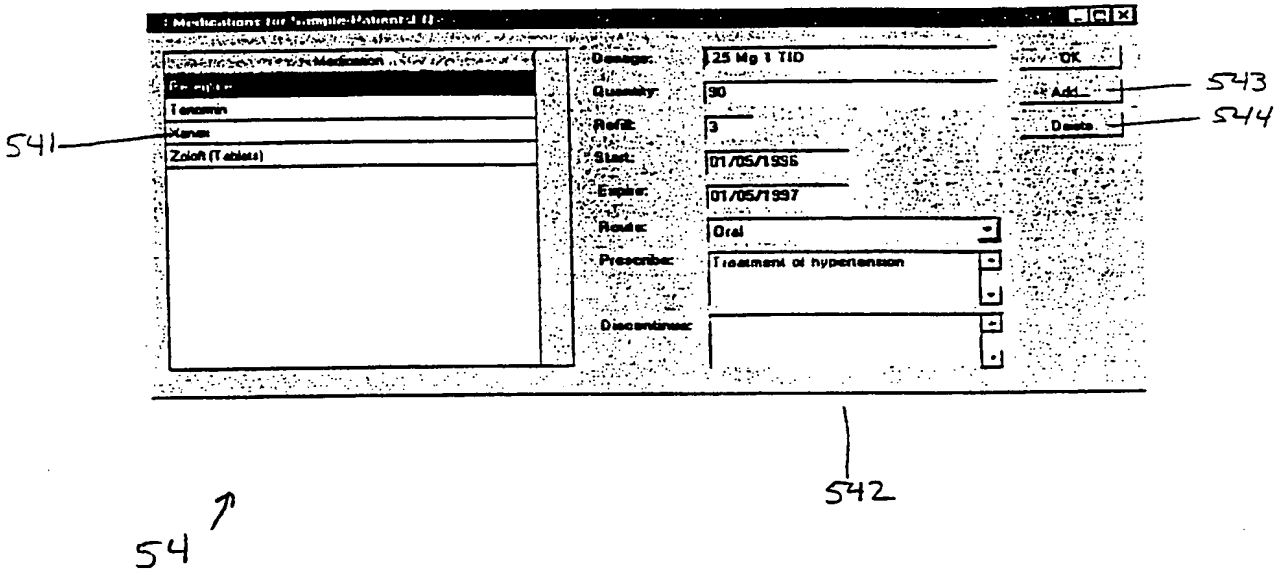


FIG. 5


541
542
543
544
54
Tenormin
Zoloft (Tablets)
Dosage:
25 Mg 1 TID
Quantity:
90
Refill:
3
Start:
01/05/1996
Expire:
01/05/1997
Route:
Oral
Prescribe:
Treatment of hypertension
Discontinue:
OK
Add...
Delete

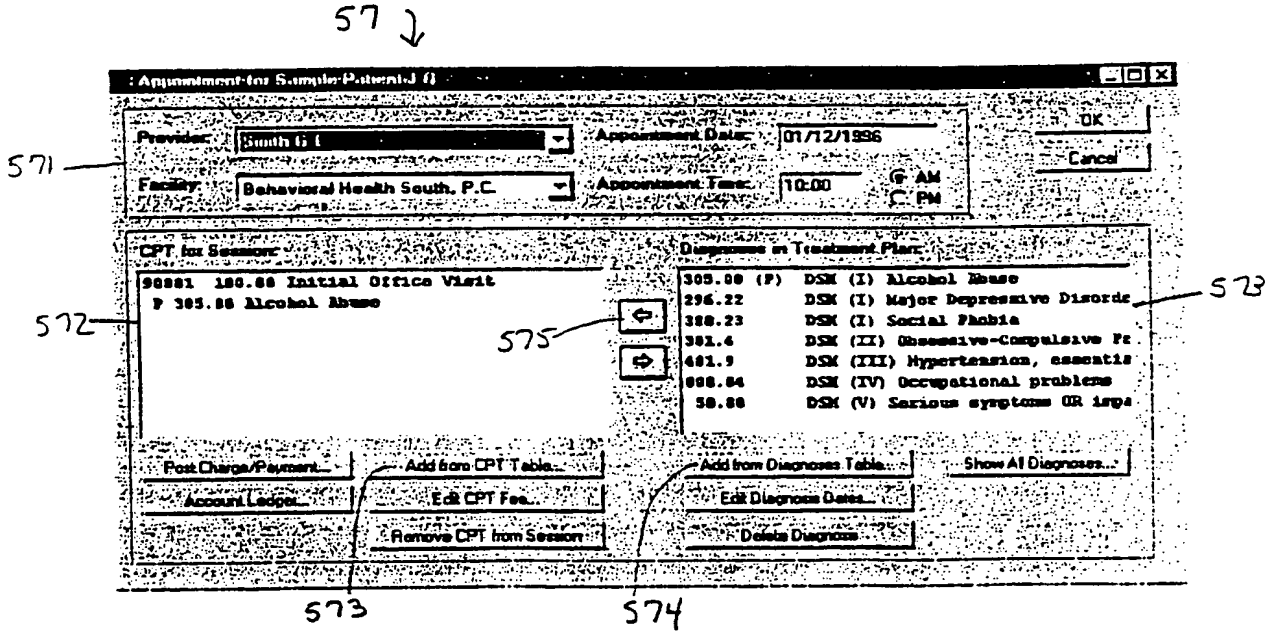
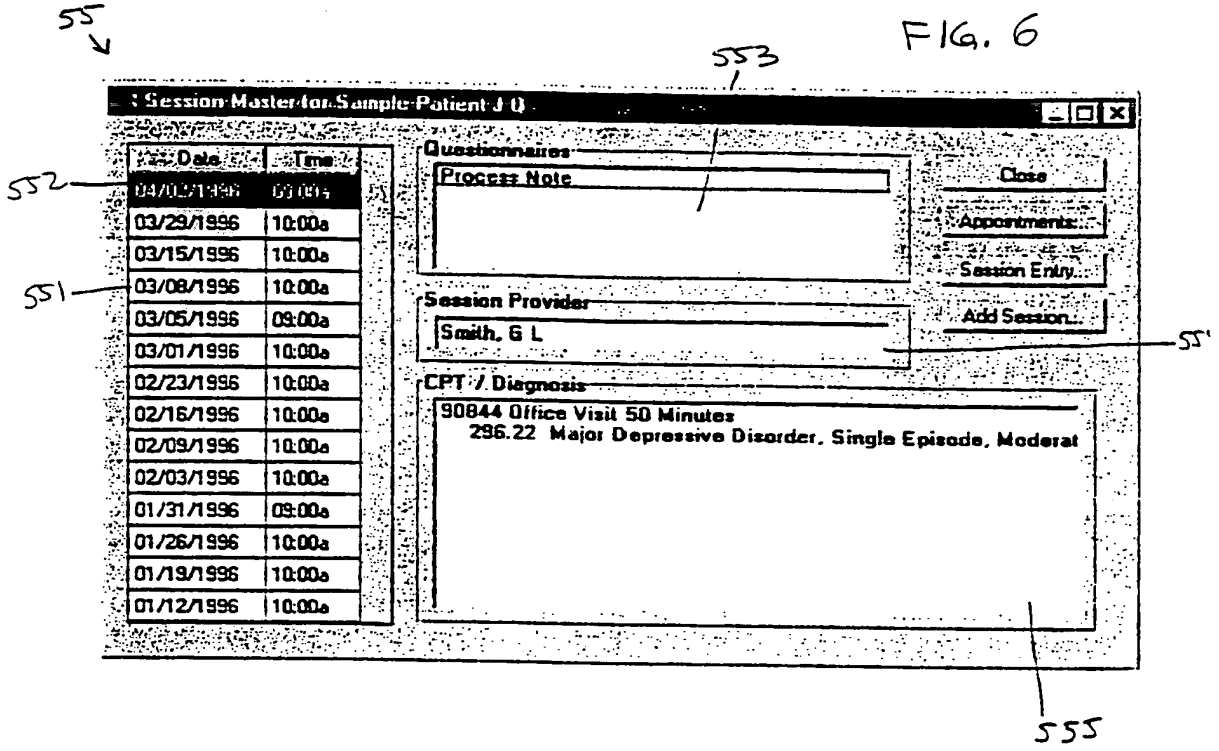

57
571
572
573
574
575
Provider:
Smith G E
Appointment Date:
01/12/1996
Facility:
Behavioral Health South, P.C.
Appointment Time:
10:00
AM
PM
OK
Cancel
CPT for Session
90801 180.00 Initial Office Visit
P 305.00 Alcohol Abuse
Diagnoses on Treatment Plan
305.00 (P) DSM (I) Alcohol Abuse
296.22 DSM (I) Major Depressive Disorde
300.23 DSM (I) Social Phobia
301.4 DSM (II) Obsessive-Compulsive Fe
401.9 DSM (III) Hypertension, essentia
000.00 DSM (IV) Occupational problems
50.00 DSM (V) Serious symptoms OR impa
Post Charge/Payment...
Account Ledger...
Add from CPT Table...
Edit CPT Fee...
Remove CPT from Session
Add from Diagnoses Table...
Edit Diagnosis Dates...
Delete Diagnosis
Show All Diagnoses...

FIG. 8


55
553
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55'
555
Session Master for Sample Patient J Q
Date
Time
03/29/1996 10:00a
03/15/1996 10:00a
03/08/1996 10:00a
03/05/1996 09:00a
03/01/1996 10:00a
02/23/1996 10:00a
02/16/1996 10:00a
02/09/1996 10:00a
02/03/1996 10:00a
01/31/1996 09:00a
01/26/1996 10:00a
01/19/1996 10:00a
01/12/1996 10:00a
Questionnaires
Process Note
Close
Appointments...
Session Entry...
Add Session...
Session Provider
Smith, G L
CPT / Diagnosis
90844 Office Visit 50 Minutes
296.22 Major Depressive Disorder, Single Episode, Moderat

FIG. 6

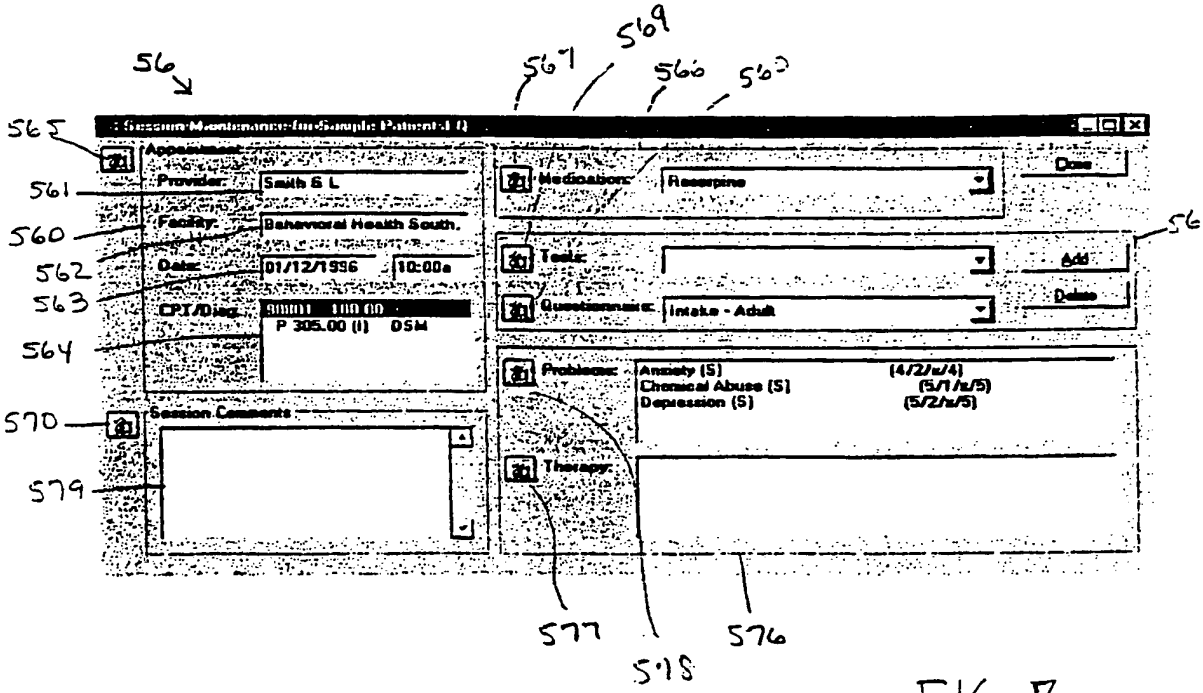
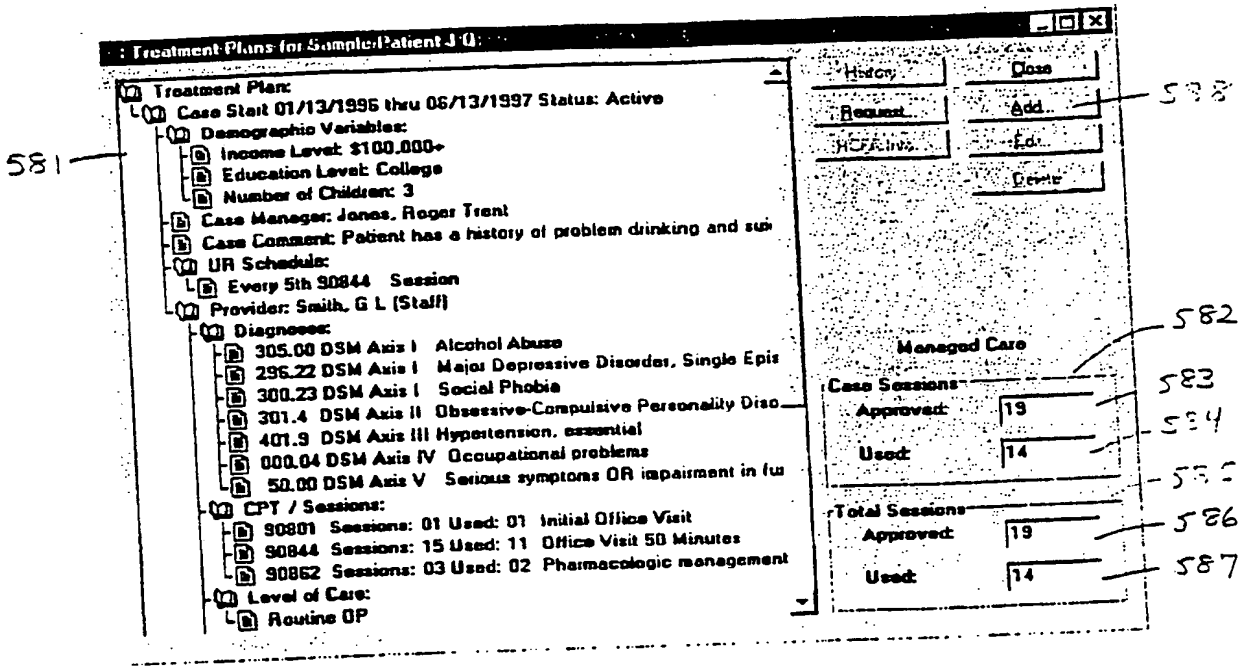

56
569
567
566
565
561
560
562
563
564
570
579
577
518
576
Appointment
Provider:
Smith G L
Facility:
Behavioral Health South.
Date:
01/12/1996
10:00a
CPT/Diag:
P 305.00 (I) DSM
Session Comments
Medication:
Reserpine
Done
Tests:
Add
Delete
Questionnaires:
Intake - Adult
Problems:
Anxiety (S)
Chemical Abuse (S)
Depression (S)
(4/2/x/4)
(5/1/x/5)
(5/2/x/5)
Therapy:

FIG. 7

FIG. 9


58
Treatment Plans for SamplePatient J Q
Treatment Plan:
Case Start 01/13/1996 thru 06/13/1997 Status: Active
Demographic Variables:
Income Level: $100,000+
Education Level: College
Number of Children: 3
Case Manager: Jones, Roger Trent
Case Comment: Patient has a history of problem drinking and sui
UR Schedule:
Every 5th 90844 Session
Provider: Smith, G L (Staff)
Diagnoses:
305.00 DSM Axis I Alcohol Abuse
296.22 DSM Axis I Major Depressive Disorder, Single Epis
300.23 DSM Axis I Social Phobia
301.4 DSM Axis II Obsessive-Compulsive Personality Diso
401.9 DSM Axis III Hypertension, essential
000.04 DSM Axis IV Occupational problems
50.00 DSM Axis V Serious symptoms OR impairment in fu
CPT / Sessions:
90801 Sessions: 01 Used: 01 Initial Office Visit
90844 Sessions: 15 Used: 11 Office Visit 50 Minutes
90862 Sessions: 03 Used: 02 Pharmacologic management
Level of Care:
Routine OP
History
Close
Request
Add...
HCFA Info
Edit...
Delete
Managed Care
Case Sessions
Approved: 19
Used: 14
Total Sessions
Approved: 19
Used: 14
581
582
583
584
585
586
587
588

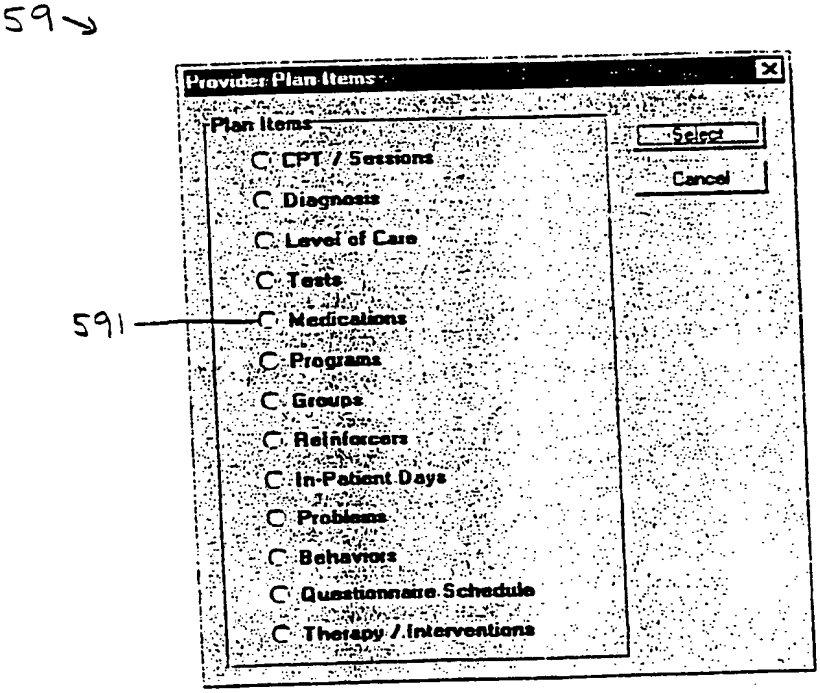

59
Provider Plan Items
Plan Items
CPT / Sessions
Diagnosis
Level of Care
Tests
Medications
Programs
Groups
Reinforcers
In-Patient Days
Problems
Behaviors
Questionnaire Schedule
Therapy / Interventions
Select
Cancel
591

FIG. 10

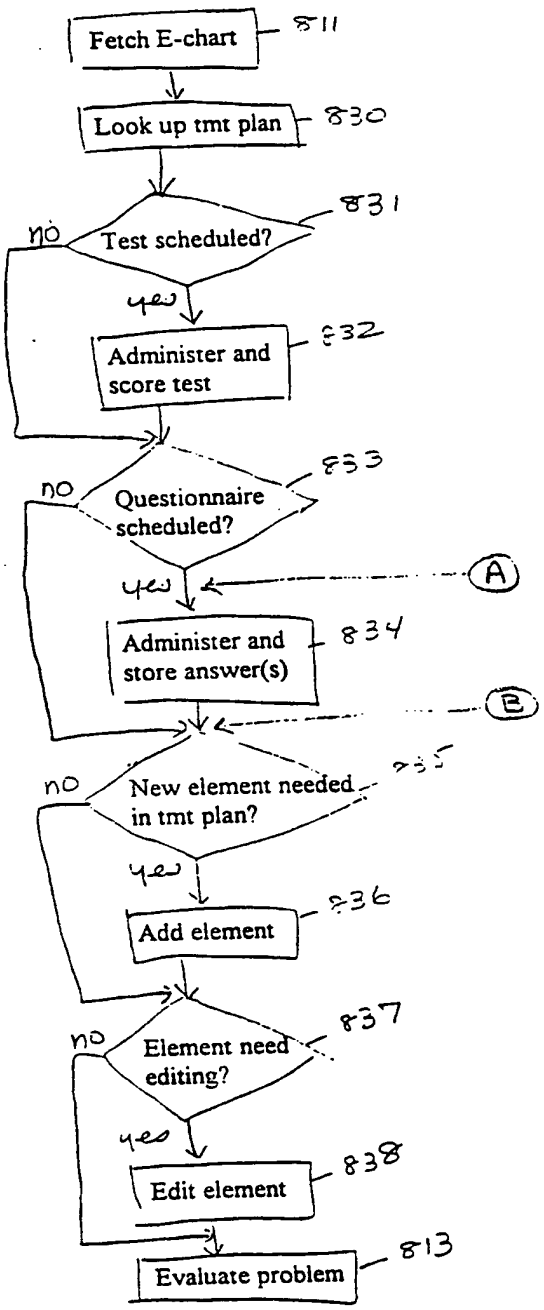


FIG. 11

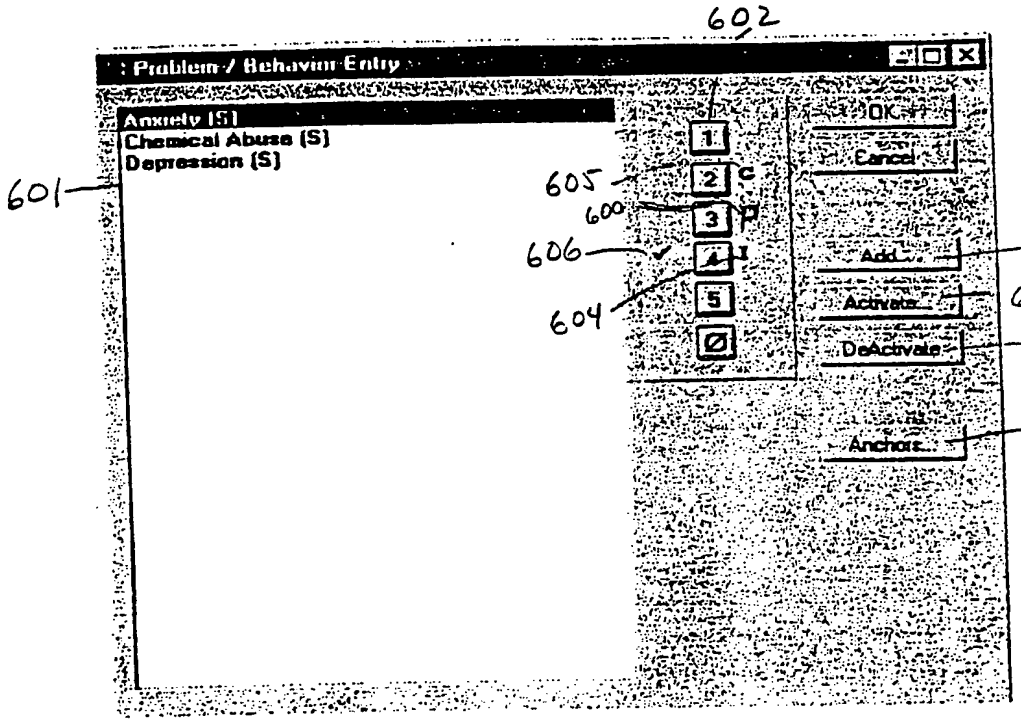

602
Problem / Behavior Entry
Anxiety (S)
Chemical Abuse (S)
Depression (S)
601
605
600
606
604
1
2
3
4
5
C
P
I
OK
Cancel
60
Add...
607
Activate...
609
DeActivate...
608
Anchors...
603

FIG. 12

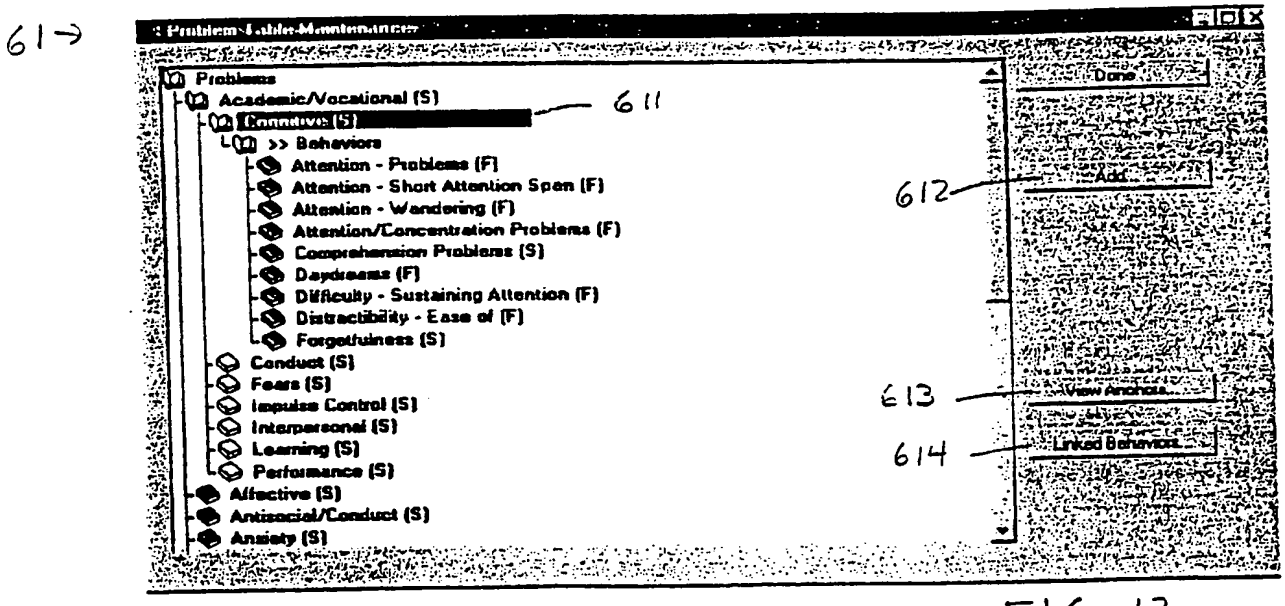
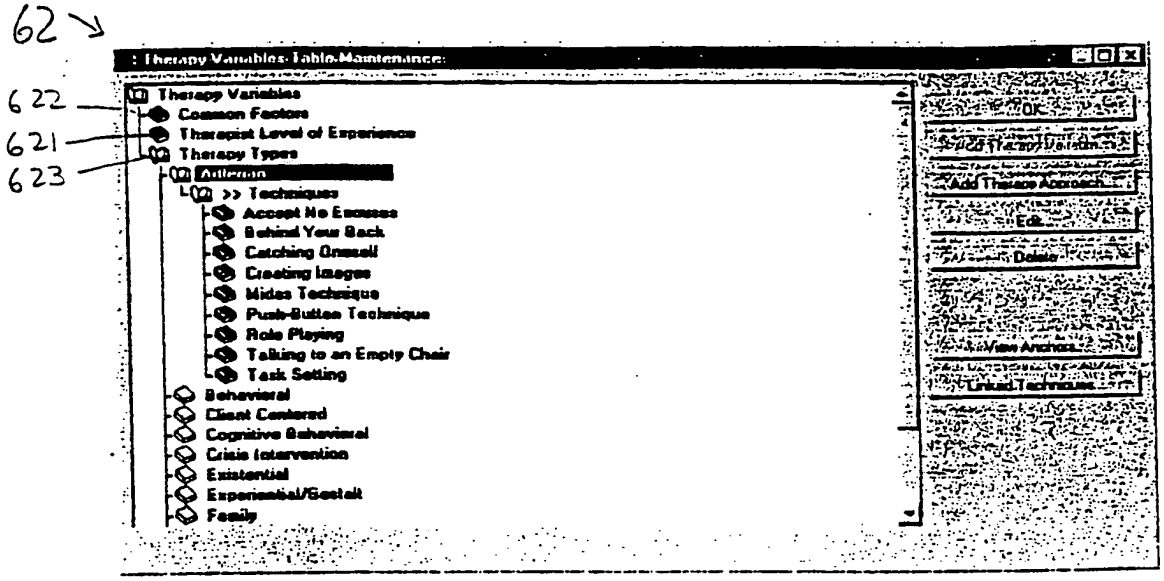

61
Problem Table Maintenance
Problems
Academic/Vocational (S)
611
Cognitive (S)
>> Behaviors
Attention - Problems (F)
Attention - Short Attention Span (F)
Attention - Wandering (F)
Attention/Concentration Problems (F)
Comprehension Problems (S)
Daydreams (F)
Difficulty - Sustaining Attention (F)
Distractibility - Ease of (F)
Forgetfulness (S)
Conduct (S)
Fears (S)
Impulse Control (S)
Interpersonal (S)
Learning (S)
Performance (S)
Affective (S)
Antisocial/Conduct (S)
Anxiety (S)
Done
612
Add...
613
View Anchors...
614
Linked Behaviors...

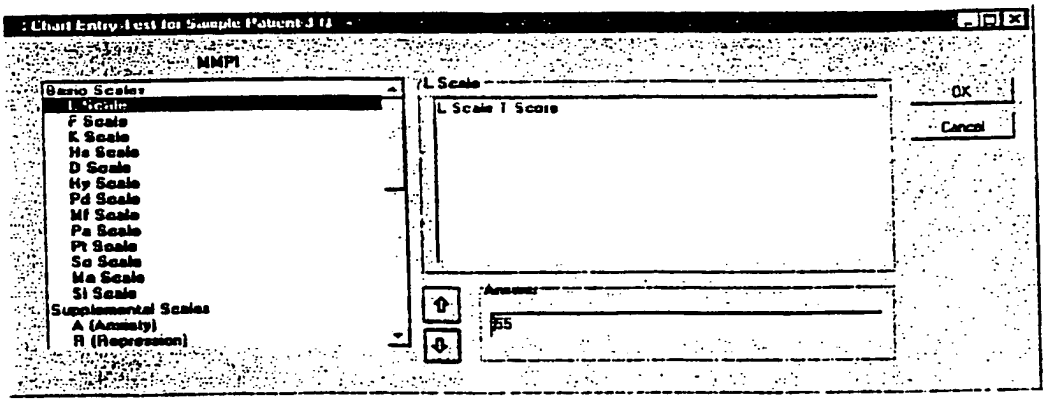
FIG. 13

FIG. 14



63

FIG. 15



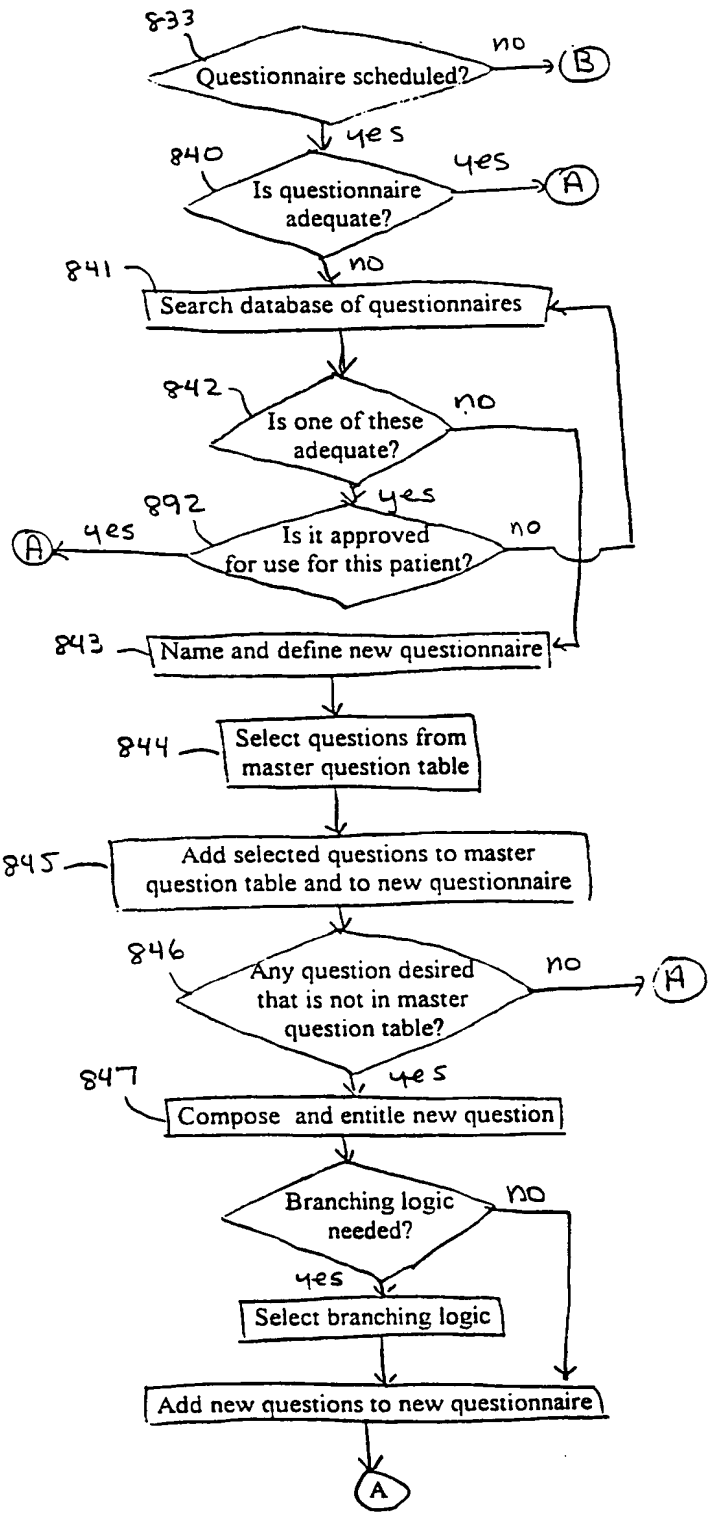


FIG. 16

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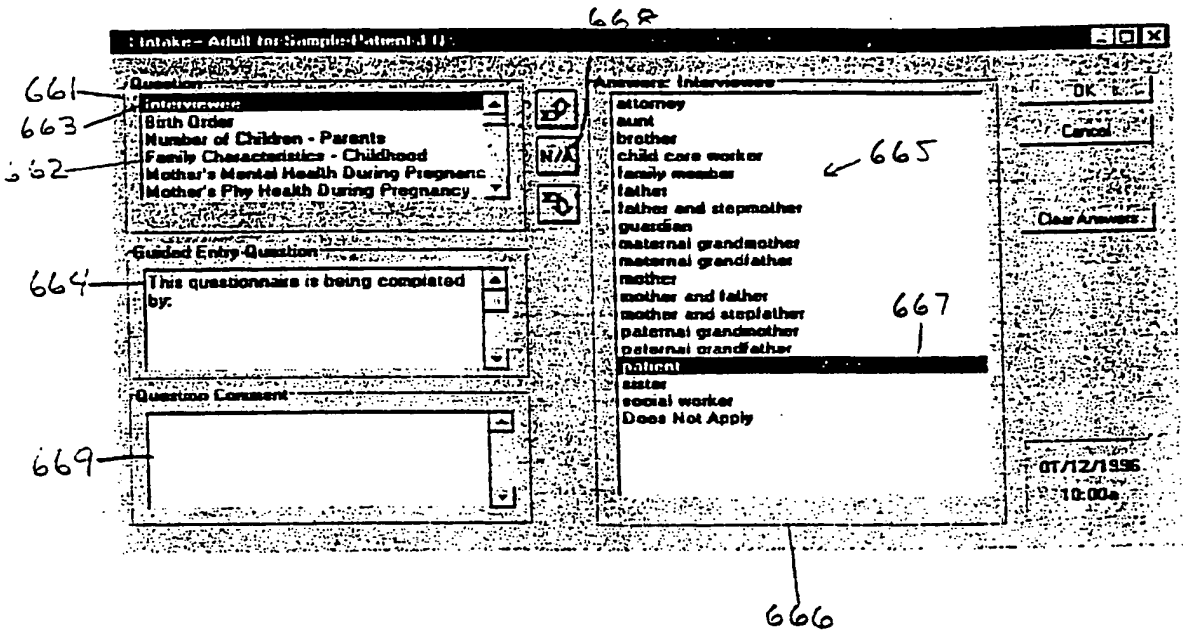
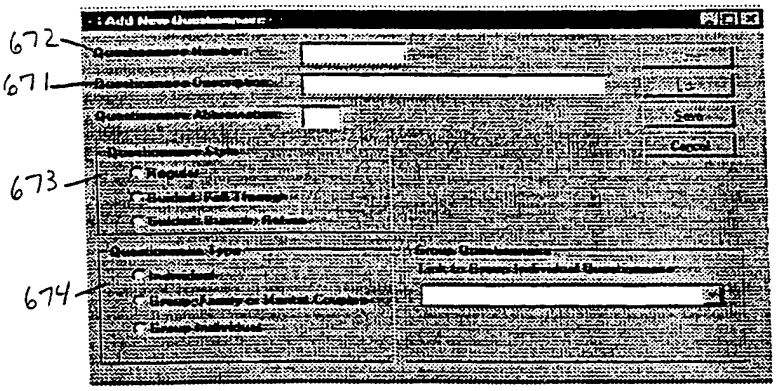
FIG. 17





← 67

FIG. 19

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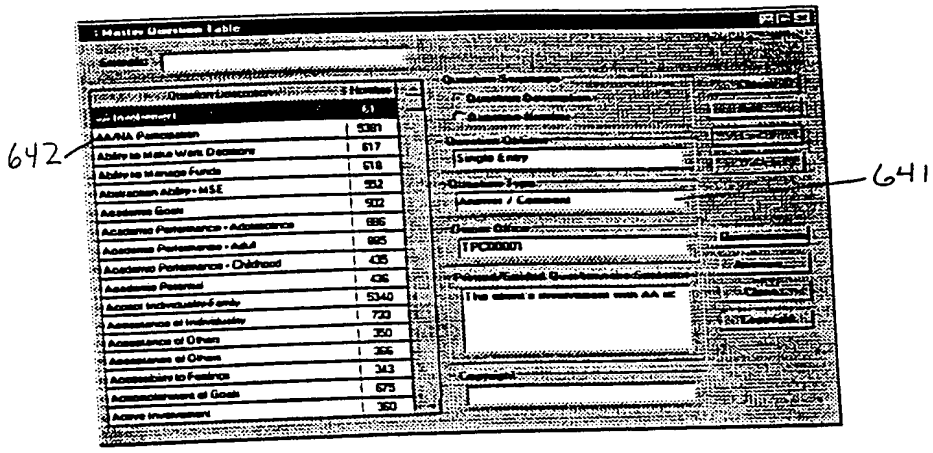
FIG. 20



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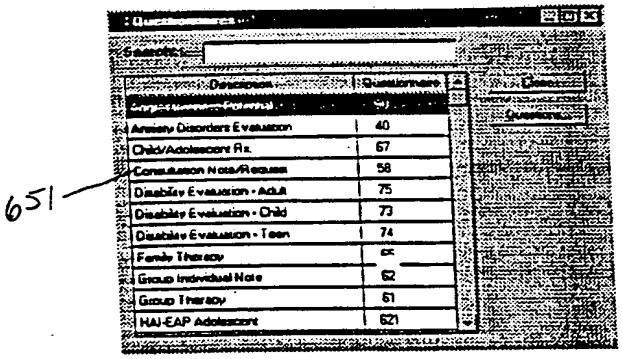
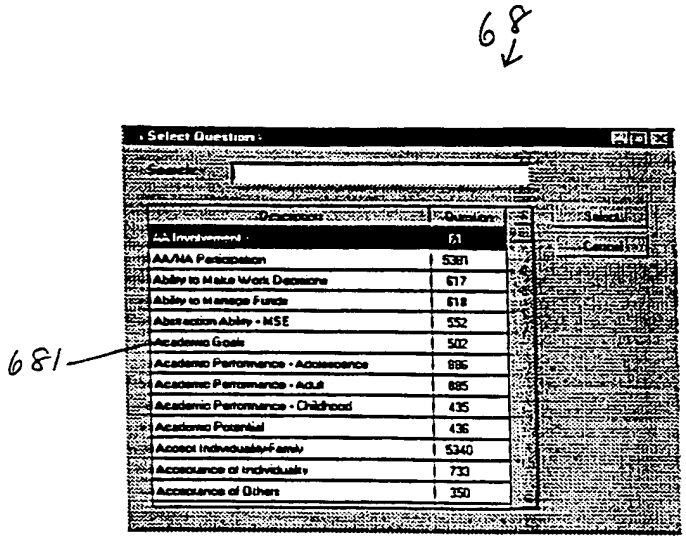


FIG. 18

FIG. 21


68
681
Select Question
Description
Question
AA Involvement
AA/HA Perception
Ability to Make Work Decisions
Ability to Manage Funds
Abstraction Ability - MSE
Academic Goals
Academic Performance - Adolescence
Academic Performance - Adult
Academic Performance - Childhood
Academic Potential
Accept Individuality/Family
Acceptance of Individuality
Acceptance of Others
5381
617
618
552
502
886
885
435
436
5340
733
350

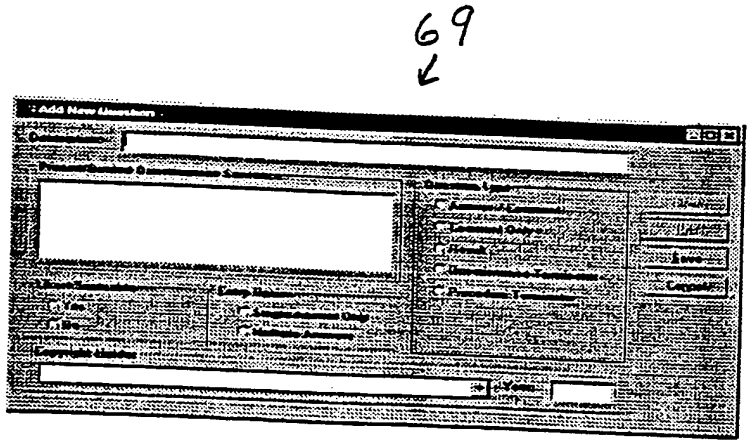

69

FIG. 22

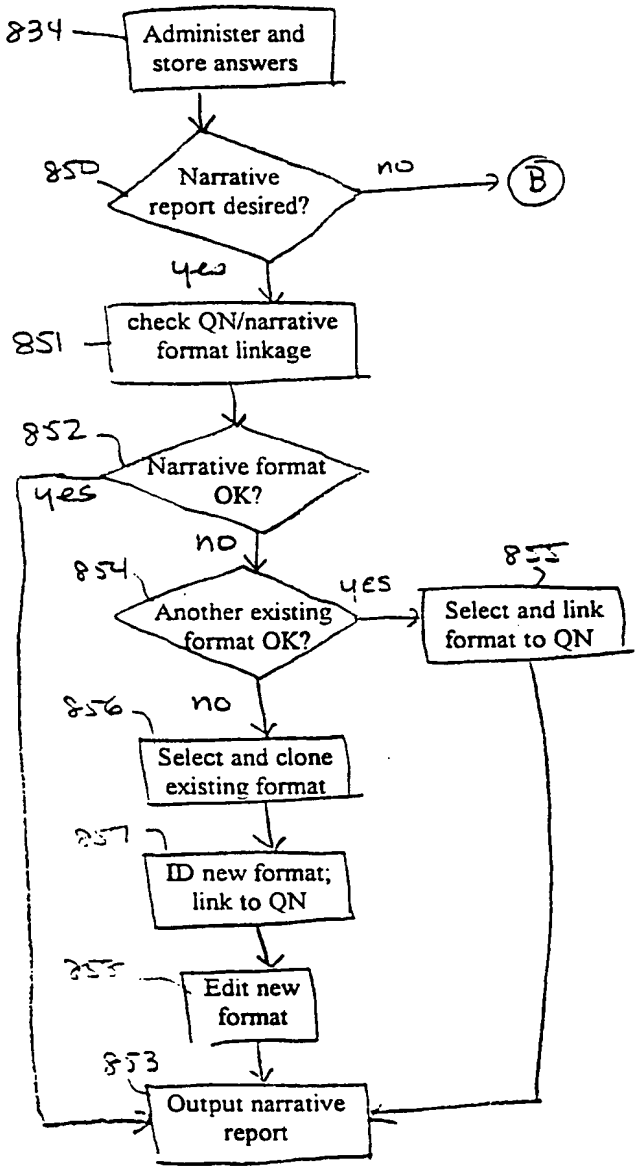
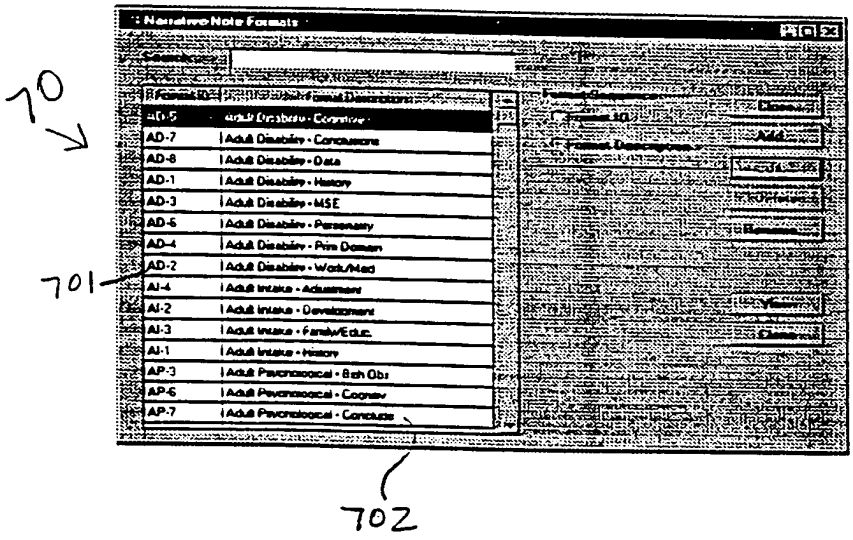


FIG. 23

FIG. 24


70
701
AD-5
AD-7
AD-8
AD-1
AD-3
AD-6
AD-4
AD-2
AI-4
AI-2
AI-3
AI-1
AP-3
AP-6
AP-7
702

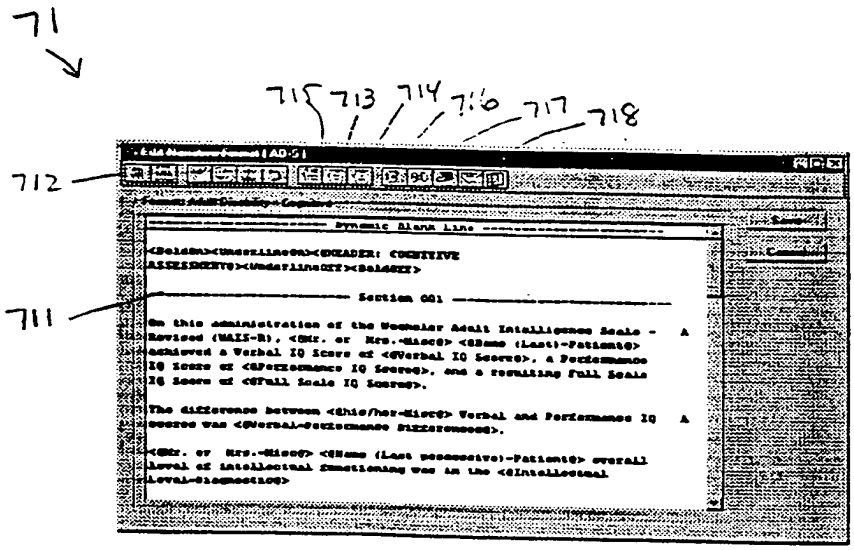

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FIG. 25

Behavioral Health South, P.C.

Narrative: MC-SR - Managed Care - Session Review

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Center Line-><UnderlineOn><BoldOn>MANAGED CARE SESSION REVIEW<BoldOff><UnderlineOff>

---------- Permanent Blank Line ----------

---------- Permanent Blank Line ----------

Name	<@Name (First I. Last)-Patient@>
SS Number	<@Social Security Number-Patient@>
Date of Birth	<@Date of Birth-Patient@>
Date of Evaluation	<@Chart Note Date-Misc@>
Age	<@Age-Patient@>
Sex	<@Sex (male/female)-Patient@>
Marital Status	<@Marital Status-Patient@>
Chart Number	<@Chart #-Patient@>
Chart Entered By	<@Chart Entered By-Misc@>
Diagnoses	<@Diagnostic Code I (Header)-Patient@>
	<@Diagnostic Code II (Header)-Patient@>
	<@Diagnostic Code III (Header)-Patient@>
	<@Diagnostic Code IV (Header)-Patient@>
	<@Diagnostic Code V (Header)-Patient@>

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---------- Section 001 ----------

Assessment was based on <@Assessment@>.

The general treatment approaches utilized during this session included <@Intervention@>.

Specific techniques included <@Techniques@>.

A consultation was completed on <@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> regarding <@Consultation Focus@> by <@his/her-Misc@> <@Consultee@>.

---------- Section 002 ----------

261 <@Mr. or Mrs.-Misc@> <@Name (Last possessive)-Patient@> attitude was <@Attitude - Client@>.

The content of the session was focused on <@Content - Session@>.

Subjective distress was assessed as <@Subjective Distress@>.

<@Personality Organization@>.

<@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> is experiencing <@Cognitive Impairment@> in cognitive functioning.

<@He/She-Misc@> demonstrated <@Interpersonal Impairment@> in interpersonal relationships, <@Emotional Impairment@>, and

FIG. 26A

Behavioral Health South, P.C.

Narrative: MC-SR - Managed Care - Session Review

<@Level of Job Impairment@>.

<@He/She-Misc@> <@Global Psych Adjustment@>.

---------- Section 003 ----------

<@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> <@Responsiveness to Therapy@>.

<@Global Improvement@>.

<@He/She-Misc@> <@Prognosis/Continued Treatment@>.

Issues to be addressed during the next session include <@Session Prompt@>.

<@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> <@Return Appointment - Singular@>.

---------- Section 004 ----------

<@Chart Note Comment-Misc@>

---------- Section 005 ----------

<@BEHAVIORS/GOAL/LAST5@>

---------- Section 006 ----------

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---------- Permanent Blank Line ----------

<@Signature Line Misc@>
<@Name (First I. Last, Suffix)-Provider@>
<@Professional Title-Provider@>

FIG. 26B

Behavioral Health South, P.C.

MANAGED CARE SESSION REVIEW

Name ..... John Q. Sample-Patient
SS Number 111-11-1111
Date of Birth ..... September 4, 1990
Date of Evaluation .. February 3, 1996 10:00a
Age 45
Sex ..... male
Marital Status ..... married
Chart Number 000001
Chart Entered By .... Administrator,
Diagnoses ..... Axis I 296.22 Major Depressive Disorder, Single Episode, Moderate (DSM)

Axis I 300.23 Social Phobia (DSM)

Axis I 305.00 Alcohol Abuse (DSM)

Axis II 301.4 Obsessive-Compulsive Personality Disorder (DSM)

Axis III 401.9 Hypertension, essential (DSM)

Axis IV 000.04 Occupational problems (DSM)

Axis V 50.00 Serious symptoms OR impairment in functioning (DSM)

Assessment was based on an in-session observation. The general treatment approaches utilized during this session included brief psychodynamic therapy.

271 → Dr. Sample-Patient's attitude was overly solicitous, provocative and resistive. The content of the session was focused on fears/insecurities, grief/loss, noncompliant behavior and social concerns. Subjective distress was assessed as moderate. Personality structure was intact and functional. Dr. Sample-Patient is experiencing mild impairment in cognitive functioning. He demonstrated mild impairment in interpersonal relationships, minimal emotional impairment, and mild impairment in job performance. He presents as generally well adjusted.

Dr. Sample-Patient is interested and responsive to therapy. Overall level of improvement was major. He will likely benefit from continued treatment. Issues to be addressed during the next session include follow-up with the family and review of the marital situation. Dr. Sample-Patient was scheduled to return in two weeks.

Target Behaviors

Problem	Goal	Rating	Session

FIG. 27A

Behavioral Health south, P.C.

Anxiety (S)	2	3	02/03/1996
		4	01/31/1996
		5	01/26/1996
		4	01/19/1996
		4	01/12/1996
Depression (S)	2	3	02/03/1996
		5	01/31/1996
		4	01/26/1996
		5	01/19/1996
		5	01/12/1996
Chemical Abuse (S)	1	4	02/03/1996
		5	01/31/1996
		5	01/26/1996
		5	01/19/1996
		5	01/12/1996

not on file
not on file

FIG. 27B

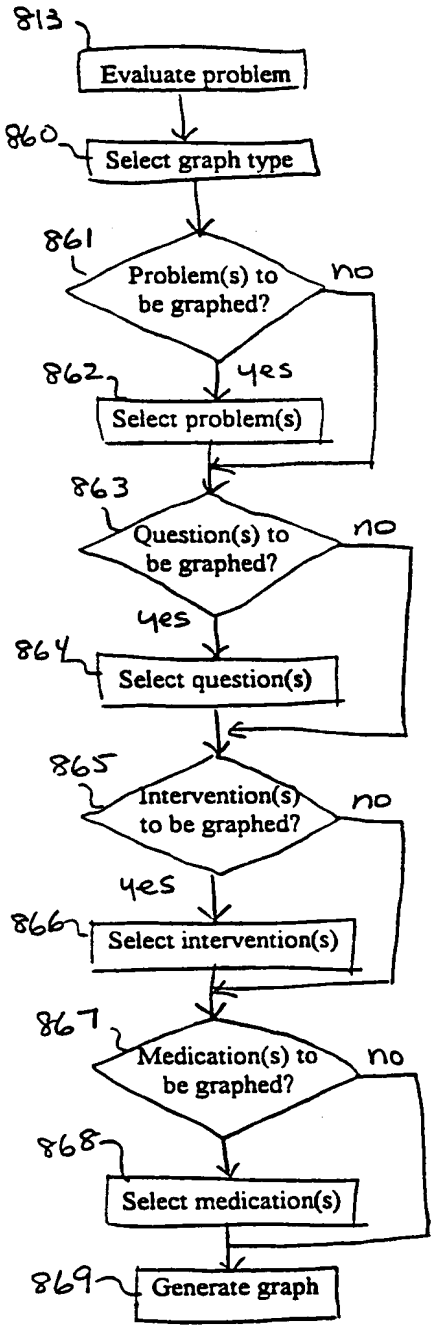


FIG. 28

FIG. 29

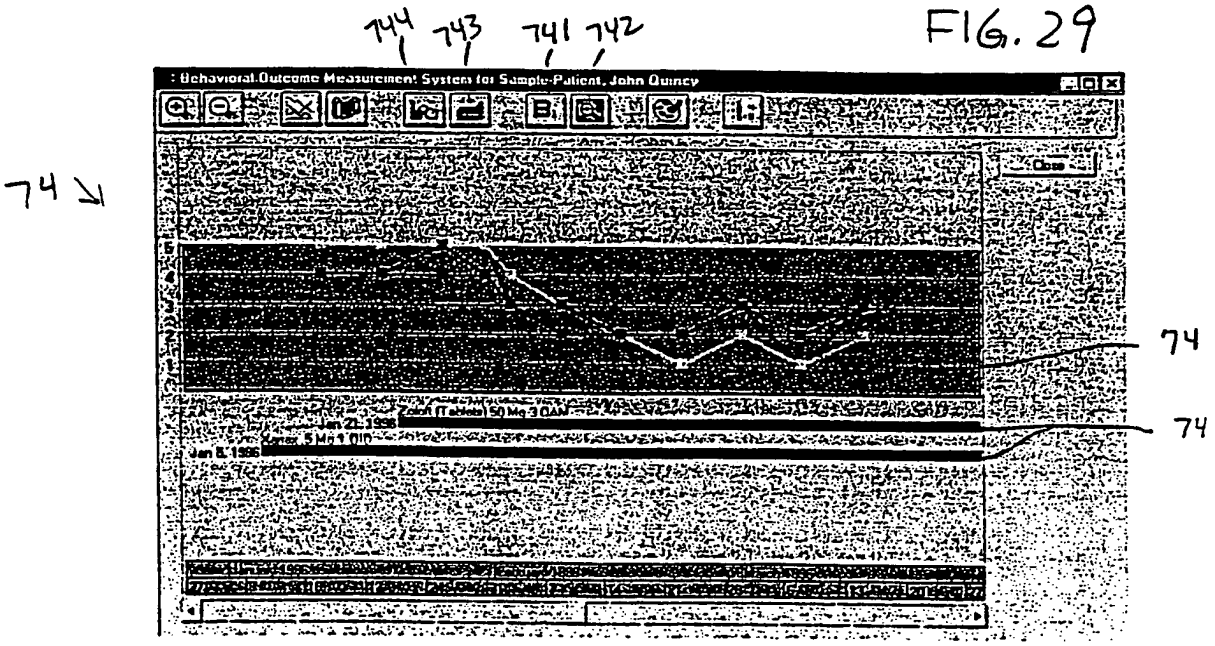
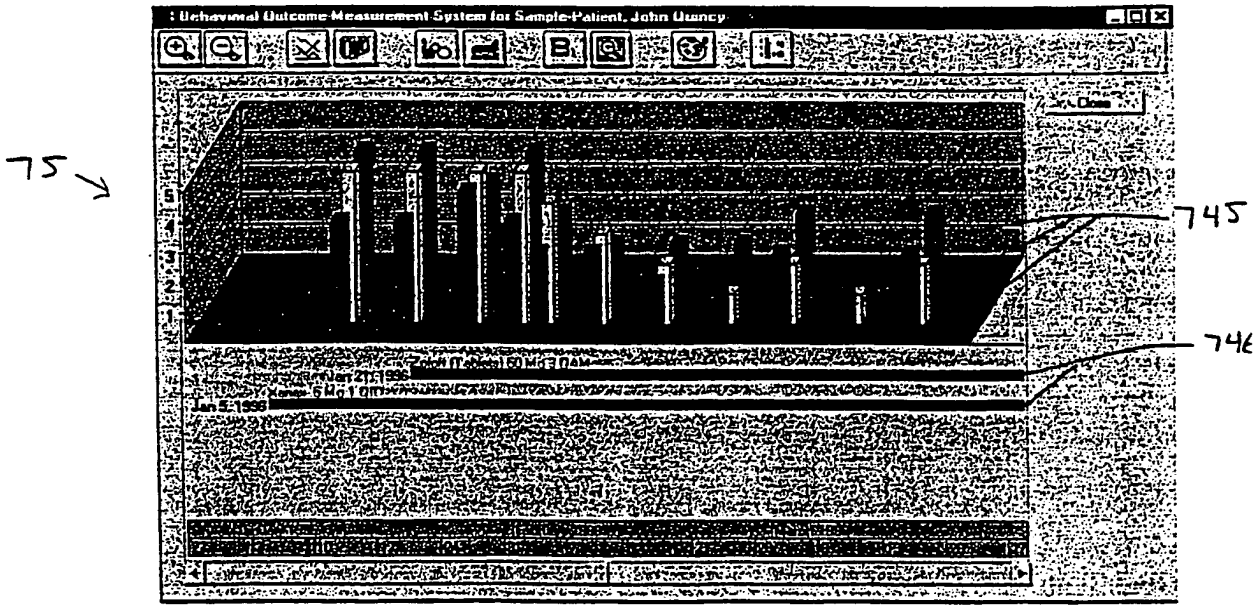


FIG. 30



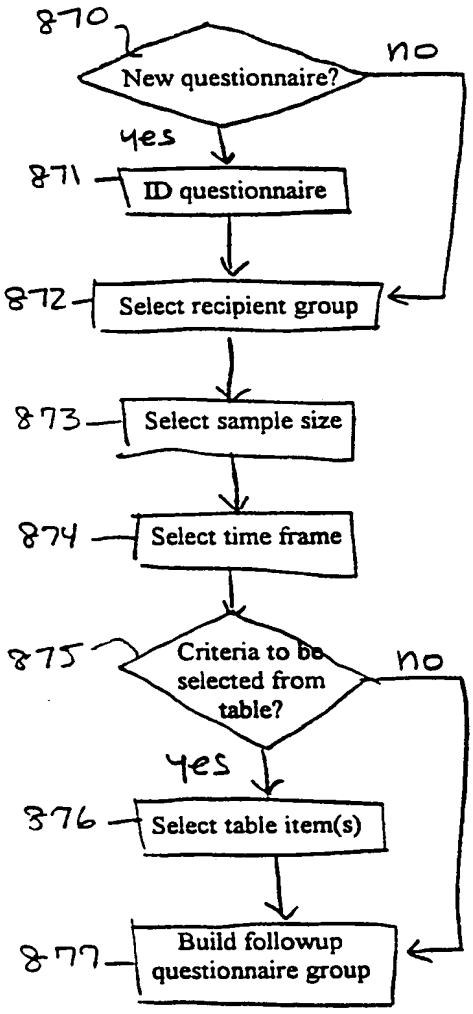


FIG. 31

FIG. 32

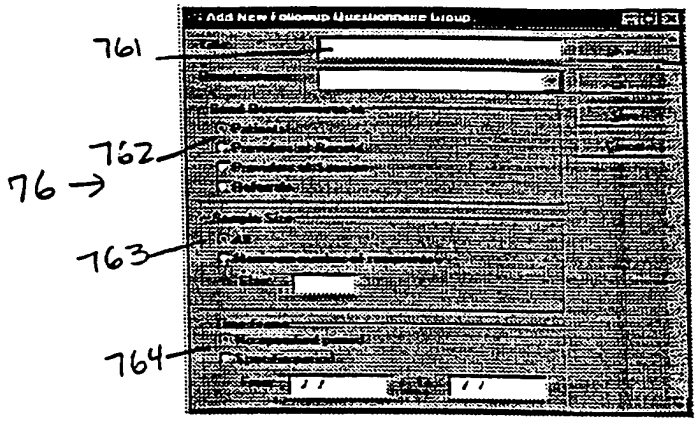


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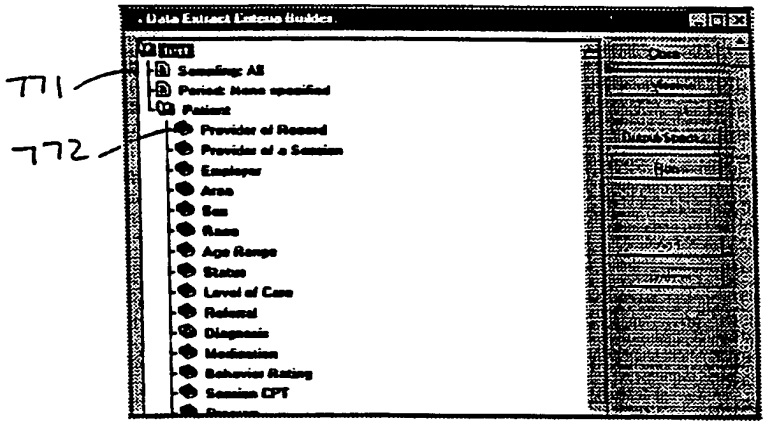
FIG. 34



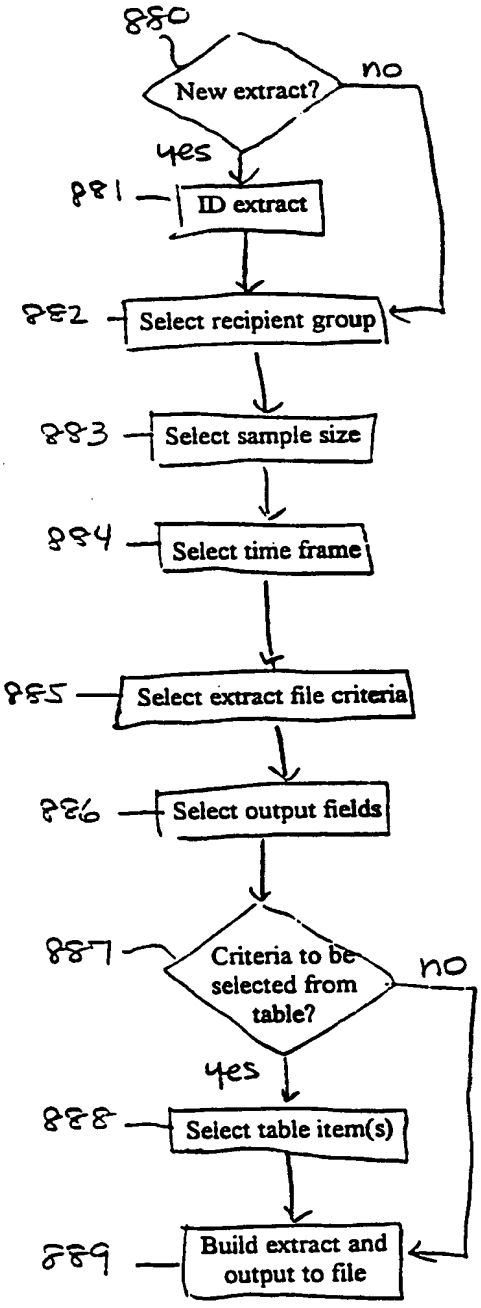


FIG. 33

INTERNATIONAL SEARCH REPORT

Inte nal Application No
PCT/US 98/02655

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F19/00

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 5 435 324 A (BRILL PETER L) 25 July 1995 cited in the application see column 2, line 15 - column 3, line 30 see column 5, line 18 - column 10, line 39; figures 1-10	1-9 10,14, 18,20
Y	WO 91 06917 A (GARCIA ANGELA M) 16 May 1991 see abstract	10,14, 18,20
A	WO 95 32480 A (SANDERS MATTHEW H ;ENACT PRODUCTS INC (US); TACKLIND CHRISTOPHER A) 30 November 1995 see abstract see page 6, line 34 - page 7, line 11	10,14, 18,20

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 June 1998	06/07/1998

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schenkels, P

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Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Int[redacted]onal Application No
PCT[redacted]98/02655

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 327 341 A (WHALEN ET AL) 5 July 1994 see column 2, line 61 - column 4, line 9	10,14, 18,20
A	EDLIN M: "Behavioral health software attracts attention" HEALTH MANAGEMENT TECHNOLOGY, DEC. 1996, ARGUS INTEGRATED MEDIA, USA, vol. 17, no. 13, ISSN 0745-1075, pages 34-37, XP002068699 see page 35, middle column, line 18 - page 37, left-hand column, line 28; figure PAGE34	1,7

1

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 98/02655

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5435324	A	25-07-1995	CA	2142906 A	03-03-1994
			EP	0656761 A	14-06-1995
			WO	9404072 A	03-03-1994
WO 9106917	A	16-05-1991	US	5065315 A	12-11-1991
			AU	6622090 A	31-05-1991
			CA	2067747 A	25-04-1991
			EP	0497832 A	12-08-1992
WO 9532480	A	30-11-1995	US	5704366 A	06-01-1998
			AU	2646395 A	18-12-1995
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(71) Applicant: THE PSYCHOLOGICAL CORPORATION [–/US]; 555 Academic Court, San Antonio, TX 78204 (US).

(72) Inventors: BAIR, Steven, L.; 2027 Countryridge Circle, Birmingham, AL 35243 (US). MEREDITH, Ronald, L.; 1607 Fairway View Drive, Birmingham, AL 35244 (US). TILLOTSON, Danny, R.; 514 Riviera Drive, Altamonte Springs, FL 32701 (US).

(74) Agent: HARTT, Jacqueline, E.; Allen, Dyer, Doppelt, Milbrath & Gilchrist, P.A., Suite 1401, 255 South Orange Avenue, P.O. Box 3791, Orlando, FL 32802–3791 (US).

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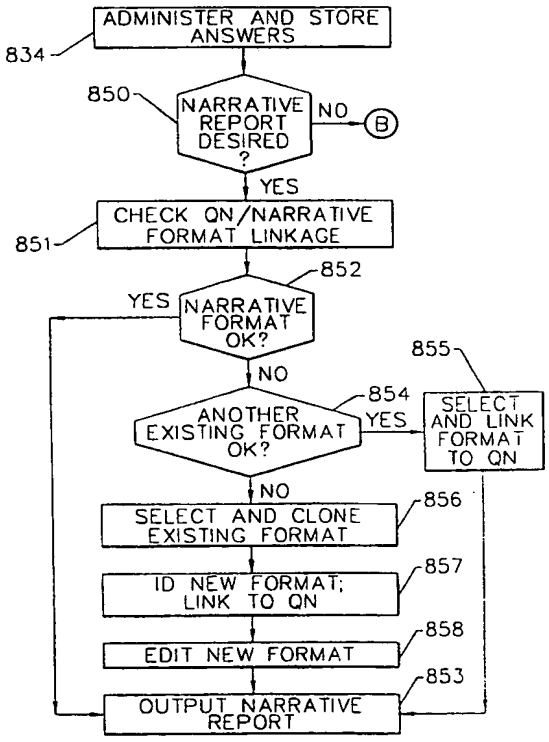
(57) Abstract

The present invention relates to systems and methods for reporting behavioral health care data, and, more particularly, for creating displays and reports for aggregating data from patient treatment results. One feature permits the user to choose among patient progress indicators relative to a behavioral problem to be graphed versus time, along with one or more treatments, in order to gauge the effect of the treatment upon the behavioral problem. Another feature permits the generation of a narrative report that integrates fixed textual matter with data from the patient's electronic chart. An alternate embodiment of this feature also permits the composition of formats for a narrative report.



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SYSTEM AND METHOD FOR REPORTING BEHAVIORAL HEALTH CARE DATA

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to systems and methods for reporting behavioral health care data, and, more particularly, for creating displays and reports for aggregating data from patient treatment results.

Description of Related Art

Health information systems in general, and behavioral health information systems in particular, have been the subject of considerable development efforts. Increasing demands have been placed by regulatory agencies and "hosts," which comprise the insurance companies, health-maintenance organizations, or hospitals that typically approve and pay for a care regimen for a patient. Extensive record-keeping is required, as well as extensive forms generation, time-intensive but non-revenue-generating activities.

Behavioral health care systems share some characteristics with other types of health care systems, including the need for data handling and transfer and billing functions. However, the results achieved with knowledge gleaned from the behavioral sciences until recently have been resistant to quantification and have endured the label of being "soft." For example, it is relatively simple to deduce that a patient can in most cases be cured of a particular type of infection with a dosage of an antibiotic administered over a period of time. However, similar deductions are more difficult to achieve with a behavioral health problem: How many sessions will it take to "cure" a depressed person? What does "cure" actually mean? Therefore, it would be desirable to be able to rate a severity of a behavioral health problem and to track the patient's improvement over time, including all the variables that comprise the treatment (type and duration of therapy, medication).

In a currently typical provider environment, such as a clinic, several therapists may treat patients on an outpatient basis. On a first visit the patient spends time filling out an information sheet, including demographic (i.e., social security number, name, and address) and insurance information. This handwritten information is then transcribed by a clinic employee and entered into a locally maintained database. Following a patient session, a form is generated, either manually or via the computer, and mailed or faxed to the host. The form contains one or more

billing codes, such as those contained in the *CPT Code Table*, a widely used standard.

At the host site, the data on the form are correlated with a host database to ensure that the patient has a current policy and that the service provided is covered by that policy. This is usually undertaken by a case manager or claims adjudicator, who then either approves or disapproves the service for payment to the provider.

In the behavioral health field, a therapist typically diagnoses a patient's behavior(s) (e.g., absenteeism, acting out) and problem(s) (e.g., anxiety, depression) using the criteria set forth in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) and makes detailed handwritten chart notes expanding upon the patient's status. The DSM codes are relayed to the host, accompanied by the CPT code(s), with a request for payment and/or request for treatment approval.

Should the service recommended or provided fall outside the bounds of the patient's coverage, for example, if the patient has not improved sufficiently after a prescribed series of sessions, the provider will have to request additional sessions. Such a request may occur, for example, by sending case notes to the host, which again will have to be reviewed by a case manager.

Another area in which information systems have been applied is in treatment outcome evaluation, wherein a test or a series of tests is repeated at specified time intervals in order to monitor a patient's progress during therapy.

Yet another area of usefulness for information systems is in the establishment of a sufficiently large database to enable the calculation of average treatment outcomes. Such an evaluation is intended to provide an indication of treatment norms for a range of behavioral problems and severities. This will enable a host and/or provider to assess the relative effectiveness of a particular patient's treatment over time as compared with the norm. Such data would also be effective in aggregating results for a particular provider site (e.g., clinic) or therapist.

A health resource consumption system has been described by Mohlenbrock et al. (U.S. Pat. No. 5,018,067); an apparatus for measuring psychotherapy outcomes, by Brill (U.S. Pat. No. 5,435,324; and a microcomputer-based mental health information system, by McCullough et al. (*American Psychologist* **41**, 207-14, 1986).

There is no known system that integrates and automates all the behavioral health care

provider functions, including maintaining patient records, monitoring patient progress, performing scheduling operations, preparing billing and clinical reports, sending and receiving patient information directly online with a host system, and interfacing with an external database for amassing behavioral health care statistics. Further, there is no known interrelated host system that links multiple provider sites for managing clinical and financial data and permits automated case management, data aggregation, a treatment plan formulary, a query tool, and executive reporting capabilities.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a behavioral health care optimization system and method for integrating patient chart, previous treatment, and treatment plan information, thereby minimizing requirements for human interaction.

It is another object to provide such a system that is compatible with both a host and a provider architecture.

It is an additional object to provide such a system and method for automating approval for treatment by the host site.

It is a further object to provide such a system and method that can electronically communicate selected information to a data-collection center for amassing a database of behavioral treatment outcome data.

It is yet a further object to provide such a system and method for displaying treatment goals with medications and interventions.

It is yet another object to provide such a system and method that permit the creation of customized questionnaires and the cross-referencing of a particular common question's results.

It is yet an additional object to provide such a system and method that permit user-defined branching within a questionnaire.

These objects and others are attained by the present invention, a system and method for reporting behavioral health care data. The system preferably comprises two interrelated systems, one resident within a computer housed at the provider site, which typically includes an office of a behavioral health care worker, such as a psychiatrist, psychologist, or social worker. The provider site may also be a hospital or clinic having a plurality of therapists liked via, for example, a local-area network. The second linked system is resident in a computer at the host

site, which is typically a central office of an insurance company, health maintenance organization, or managed care organization. The host site may also be a hospital.

The provider system comprises means for performing a plurality of in-house functions, including assisting providers in electronically performing and recording clinical functions. The provider system also comprises means for displaying and entering results for one or more tests chosen from a group of empirically validated assessments and custom questionnaires. The provider system further comprises means for displaying outcome data versus time in graphical form, superimposed with medication and intervention data, and for monitoring patient progress, tracking a selected outcome measure.

Another important feature of the provider system is a means for electronically communicating with the host site computer, which permits electronically managing clinical and financial data, substantially without human intervention. Means are resident within the provider and host systems for achieving data transfer, including requests and approvals for treatment and payment, automatically, so long as the requests fall within a predetermined set of parameters resident within the host computer. Such parameters may also have been downloaded into the provider computer. Should a request not fall within this set of parameters, means are also provided for referring the request to a case manager and for transmitting the case manager's determination back to the provider system. The set of parameters for treatment typically comprise a set of rules that may be different for each plan, the rules governing, for example, how many treatment sessions are automatically granted for a particular behavioral problem reported by the patient. These rules are set at the host site and are fixed unless the host management makes a determination that a rule needs to be changed. Such a determination may be based, for example, on the results of statistics gathered from a plurality of provider sites or a change in a plan governing a particular set of patients.

The host system also includes means for tracking treatment plans and maintaining patient records. The host system also includes a database of provider profiles for use in recommending a therapist to a client based on selected criteria such as geographical location and area(s) of specialization.

The features that characterize the invention, both as to organization and method of operation, together with further objects and advantages thereof, will be better understood from the following description used in conjunction with the accompanying drawing. It is to be

expressly understood that the drawing is for the purpose of illustration and description and is not intended as a definition of the limits of the invention. These and other objects attained, and advantages offered, by the present invention will become more fully apparent as the description that now follows is read in conjunction with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flowchart of exemplary host-provider interactions.

FIG. 2 is a schematic diagram of a host-provider system configuration and the structure of a host site and a provider site.

FIG. 3 illustrates an exemplary patient list screen.

FIG. 4 illustrates an exemplary patent master screen.

FIG. 5 illustrates an exemplary medications screen.

FIG. 6 illustrates an exemplary session master screen.

FIG. 7 illustrates an exemplary session maintenance screen.

FIG. 8 illustrates an exemplary appointment information screen.

FIG. 9 illustrates an exemplary treatment plan screen.

FIG. 10 illustrates an exemplary provider plan item screen.

FIG. 11 is a flowchart of an exemplary treatment course.

FIG. 12 illustrates an exemplary problem/behavior entry screen.

FIG. 13 illustrates an exemplary problem/behavior table screen.

FIG. 14 illustrates an exemplary therapy variables table screen.

FIG. 15 illustrates an exemplary test screen.

FIG. 16 is a flowchart for choosing and creating a new questionnaire.

FIG. 17 illustrates an exemplary questionnaire screen, here an adult intake questionnaire.

FIG. 18 illustrates an exemplary select questionnaire screen.

FIG. 19 illustrates an exemplary add new questionnaire screen.

FIG. 20 illustrates an exemplary master question table screen.

FIG. 21 illustrates an exemplary select questions screen.

FIG. 22 illustrates an exemplary add new question screen.

FIG. 23 is a flowchart for the creation of a narrative report.

FIG. 24 illustrates an exemplary screen for choosing a narrative note format.

FIG. 25 illustrates an exemplary screen for editing the narrative note format.

FIG. 26 illustrates an exemplary narrative format structure, with FIG. 26A containing the first page and FIG. 26B, the second page of the format.

FIG. 27 illustrates a narrative report created from the narrative formate structure of FIG. 26A,B, with FIG. 27A containing the first page and FIG. 27B, the second page of the report.

FIG. 28 is a flowchart for behavioral outcomes measurement.

FIG. 29 is an exemplary line graph generated by the behavioral outcomes measurement system.

FIG. 30 is an exemplary bar graph generated by the behavioral outcomes measurement system.

FIG. 31 is a flowchart for creating a recipient group for sending a followup questionnaire.

FIG. 32 illustrates an exemplary screen for creating a followup questionnaire group.

FIG. 33 is a flowchart for creating a data extract from the database.

FIG. 34 illustrates an exemplary screen for building the criteria for performing the data extract.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A description of the preferred embodiments of the present invention will now be presented with reference to FIGS. 1-34.

Host-Provider Systems and Interactions

A logic flowchart of an exemplary host-provider interaction comprising obtaining host site approval for and carrying out a treatment plan for a patient is given in FIG. 1. Reference is also made to elements in FIG. 2, which illustrates an exemplary hardware and software configuration for the host-provider system **10**.

At step **801** a patient sets up an appointment at a provider site. Such an appointment can be initiated by the host or the patient. A determination is made at step **802** as to whether he/she is a new patient by checking against a patient list housed in a database **321** in the provider computer **32**. If the patient is new, a check is made at step **803** as to whether this patient's

electronic chart has already been downloaded from the host computer **20**.

It is an important feature of the present invention that a patient's demographic and treatment information can be downloaded automatically from a host site without being requested. This occurs by a patient's requesting treatment directly from the host at step **821**. The host first checks at step **822** that the patient has a policy, and whether the problem reported by the patient is covered by his policy at step **823**. The host site then checks against its provider database at step **824** to recommend a provider to the patient based upon criteria such as geographical location and provider area(s) of specialization. Then, during a subsequent connect time between that provider and the host, the patient's pertinent information is downloaded directly into the provider's database at step **825**, where it will be available for access by the provider at step **803**, along with a preapproved treatment plan (for example, 5 therapy sessions of 1-hour duration plus a course of medication for depression).

If the new patient's information has not yet been entered, an electronic chart is set up at step **831** with information provided by the patient.

Typically the patient is then assigned to a therapist at step **804**, who makes an initial behavioral diagnosis during a session using a table housed in the computer database that comprises the DSM codes. The therapist also rates the severity of the problem and enters a goal rating and a therapy treatment plan aimed at achieving that goal into the patient's electronic chart at step **805**. Alternatively, a treatment plan may have been included with downloaded patient information at step **825**, in which case it will already be resident in the patient's electronic file.

During the next connect with the host, the DSM codes and proposed treatment plan are uploaded to the host at step **806**, if the patient has indicated that he/she is insured by that host, and if that host is using the system of the present invention. At the host site, an automatic check is made at step **807** that the patient is covered. If not, the treatment plan is rejected at step **871**, and the provider is so notified during the next download. If the patient is covered, a check is next made that the proposed treatment plan falls within the applicable set of treatment approval rules at step **808**. If not, the file is referred for human intervention to a case manager at step **881**, who decides whether to approve the treatment plan at step **882**. If approval is not granted, the treatment plan is rejected and the provider is notified (step **871**). If approval is granted, or if the treatment plan fell within the preapproved rules, the host so informs the provider electronically

during a download at step **809**. Then an appointment can be scheduled for the patient with the provider at step **810**.

An approval from the host site may also contain instructions to administer one or more instruments to the patient, which should then be incorporated into the treatment plan. Such instruments, which may include tests and/or questionnaires, can also be mandated by the host to be administered at given intervals in order to gauge patient progress.

Returning to step **802**, treatment for a returning patient proceeds by calling up the patient's electronic chart at step **811** and proceeding with the scheduled session at step **812**. By the end of the session, the therapist should be able to make a determination at step **813**, whether by testing or asking a series of questions from a questionnaire, as to the patient's progress. By referring to the electronic chart, the therapist can see at step **814** whether the patient has achieved the rating chosen as a goal for the problem being treated. If the goal has been achieved, treatment can be terminated at step **815**.

If the goal has not yet been achieved, the therapist is able to check at step **816** whether there are further sessions remaining on the approved treatment plan. If there are, another appointment should be scheduled at step **817**. If there are not, the therapist will typically set up a revised treatment plan at step **818** and request approval for the new plan by returning to step **806**. This revised treatment plan request then is evaluated electronically as outlined above, only needing human intervention if the predetermined set of rules does not permit an approval of the request. In the depression example given above, the set of rules may include automatic approval for an additional five sessions of therapy if the patient has not improved to the goal rating.

It can be seen that the host-provider system **10** of the present invention significantly reduces the need for human intervention in a large proportion of situations for which a rule-based logic can be applied, only requesting the attention of a case manager under conditions that fall outside the coverage boundaries. The system contains virtually unlimited flexibility, since the rules and databases can be updated as desired.

Hardware systems. A schematic diagram of a hardware and software configuration for a host-provider system **10** of the present invention is presented in FIG. 2. Two exemplary configurations are incorporated: In one configuration a host site **20** is in direct communication with a provider site **31**, a situation that would obtain for a private practitioner in communication

with an insurance company, for example. In another configuration the host site **20** is in communication with a local area network (LAN) system **320**, which in turn is in communication with a plurality of provider sites. This situation would be found, for example, at a clinic having a plurality of therapists **36** and a central receptionist/administrator **34**. Of course, it is to be understood by one of ordinary skill in the art that each provider will likely be in communication with a plurality of host sites; that is, each provider could be approved for coverage by different insurance companies, health maintenance organizations, etc. Communication then would be initiated between a provider and that host site by whose plan a particular patient is covered. The system provides sufficient flexibility that different sets of information can be mandated and sent to different host sites, with each having its own protocol.

In either of the configurations shown, each provider system at the provider site, as illustrated for provider site **30**, comprises at least one provider computer **32**, such as a 486-DX100 (32 MB RAM, 500 MB free hard disk, and a 14.4 bps modem **33**), that may be networked via LAN **320** (10 Mb/100 Mb CAT 5 certified cable plant, Novell 3.1 or 4.1x, Windows/NT® 3.1 or higher) at the provider site **30**, for example, to a reception workstation **34** and at least one, but typically a plurality of, therapist workstations **36** (486-DX100 or higher, 16 MB RAM, 100 MB free disk space SVGA display, 800 x 600, pointing device). Reception terminal **34** may be used for performing functions such as appointment scheduling, billing, and entering demographic information and updates.

The host site **20** preferably comprises a LAN server computer **200** (486-DX100, 64 Mb RAM, 1.2 Gb HDD per 15 concurrent users) and a modem **21** (14.4 bps v. 34), with one port per 10 provider sites. The LAN specifications include 10 Mb\100Mb CAT 5 certified cable plant, Novell 3.1 or 4.1x, Windows/NT 3.51 or 4.0. The computer **200** is linked via LAN line **22** to at least one case manager workstation **23** (486-DX100, 16 Mb RAM, 50 Mb free on hard drive, Windows 3.1 or higher, SVGA display 800 x 600). This typically occurs by placing the exception record into a "review" database, which is monitored by a case manager at the host site. The case manager has access to the demographic database **201**, the provider database **202**, and the plan rules **203**.

Host computer functions. Host site **20** comprises a host computer **200** that houses a database **201** of demographic and coverage information for the host's insured participants. The

host modem **21** is configured for communication with the provider modem **33**. Typically the modems **21,33** are not in constant communication; rather, uploads and downloads are scheduled at predetermined intervals, such as after close of business. These uploads and downloads also can carry messages other than data transfer, such as e-mail messages, during the connect, thus obviating at least some of the need for telephone calls.

The host computer **200** further houses a database **202** of providers accepted for treating patients. From this database **202** the referrals discussed above (FIG. 1, step **824**) can be made to a patient desiring treatment based upon data such as geographical location and provider area(s) of specialization.

The transfer of patient information is preferably selective and hence subject to a filtering out of data not desired to be sent. For example, prior clinical data may be withheld for reasons of patient confidentiality.

The host computer **20** also houses the set of rules **203** associated with each patient's insurance plan as discussed above, which permits the host computer **20** to approve a treatment plan automatically for a particular patient and also permits the host computer **20** to approve a change in an already-approved treatment plan without seeking a case worker's approval.

In order to amass a large amount of patient treatment statistics, means are also provided for communicating selected patient data to a data-collection center **90** for building a national or regional database. Preferably patient information is filtered prior to transmission, such as by encrypting the patient's social security number, for ensuring patient confidentiality. Such a database would ultimately become sufficiently large that statistically valid conclusions could be drawn as to efficacy of various types of treatments, including patterns of interventions and medications. It is envisioned that such statistics could then be utilized to alter the rules governing preapproved treatment plans.

Treatment plans. The treatment plan individualizes and defines the instruments and processes for the course of treatment, such as tests and questionnaires, extent and type of therapy, and level of care to be administered. Additionally, it serves as an electronic filter by which all activity in the patient chart is verified as an approved component of the plan. Therefore, as discussed above, all entries into the patient chart that are in accordance with the plan are preapproved when data are uploaded to the host computer **20**.

Treatments plans may be general or specific in nature, depending upon the type of disorder being treated and the treatment approach. Treatment plans may be constructed item by item by the provider, or the provider may modify one of an existing set of treatment plan models. Treatment plans may also be downloaded from the host **20**.

Provider computer functions. Provider computer **32** houses a database **321** of patient information. Upon opening the system, which has security features such as a requirement for entry of an ID and password, a patient list screen **51** (FIG. 3) appears. The list **514** that appears may be filtered by selecting among provider **511**, patient status **512**, and level of care **513**, all of which have drop-down lists associated with them. This list **514** may also be sorted by name, social security number, chart ID number, or social security number of the insured, by selecting the desired item within the list sequence box **515**. From this window **51** the user may add a new patient record **516**, view a highlighted patient's record **517**, or delete a patient record **518**. In addition, a search can be performed by entering record information into the search box **519**.

Once a desired patient's name **520** has been highlighted, that patient's electronic chart may be viewed either by double-clicking on the name **520**, or by clicking on "View" **517**, both of which provide entry into the Patient Master module **322**.

From the patient list screen **51** the user may also navigate via icons **521** or menu bar items **522** to other sectors of the system. For example, the Scheduling **323** and Billing **325** modules are accessed via drop-down menus on the menu bar **522**.

An additional feature of the patient list screen is an icon **510** providing a link to a diagnosis table that contains diagnostic labels and criteria set by the American Psychiatric Association in the DSM for all five axes. Hyperlinked text allows the provider to move rapidly from topic to topic and to review differential diagnosis. From the DSM reference screen a complete glossary of terms is also accessible.

The patient master screen **52** (FIG. 4) is the first point of entry into a selected patient's electronic chart and includes a template having plurality of data insertion locations, such as "Last Name" **523**, including some with what are referred to in WindowsTM terms as a "combination list box" or "combo box," which contain data housed in a user-defined table. These boxes, such as "Marital Status" **524**, are for entering demographic information. This type of screen and data entry thereinto are well known in the art.

From the patient master screen **52** the user may access other areas of the patient's electronic chart via a plurality of icons positioned across the top of the screen **52**. These icons include, but are not intended to be limited to, "Patient Account" **525**, "Session Master" **526**, "Behavioral Outcomes Measurement System" **527**, "Clinician's Summary of Change" **528**, "Medications" **529**, "Tests" **530**, "History" **531**, "Treatment Plan" **532**, "Clinical Information" **533**, "Addresses" **534**, "Relationships" **535**, "Referrals" **536**, "Groups" **537**, "Employment Information" **538**, and "Insurance Information" **539**. Each of these icons provides access to another screen from which desired information may be obtained. For example, clicking on the "Medications" icon **529** brings up the screen **54** shown in FIG. 5, which lists on the left-hand side the medications **541** prescribed for the patient and, on the right-hand side, dosage data **542**. Medications may also be added **543** or deleted **544** by clicking on the appropriate screen location.

A record of all sessions is maintained within the provider computer **32**. By clicking on the "Session Master" icon **526**, the Session Master module **324** is entered, and the corresponding screen **55** appears (FIG. 6), which represents the patient's clinical, financial, and administrative information related to a treatment session. This module **324** is linked to the Schedule **323** and Billing **325** modules, so that, when an appointment is scheduled, a corresponding session entry record is created automatically. Session entry records can also be created manually.

On the Session Master screen **55** the user may view a scrollable list **551** of all patient appointments. As a selected appointment is highlighted **552**, the corresponding session information appears on the right-hand side, including the Questionnaires administered **553**, the Session Provider **554**, and the CPT/Diagnosis **555** entered by the provider for that session.

Double-clicking on an appointment **552** causes the Session Maintenance screen **56** to open (FIG. 7), which may be reviewed, edited, or entered for recording data for a new session. Within the Appointment box **560** are located the Provider **561**, Facility **562**, Date and Time of Appointment **563**, and CPT Billing Codes with Primary Diagnosis **564**. If any of this information is desired to be changed, the edit icon **565** may be clicked, which causes the Appointment window **57** to open.

The Appointment window **57** (FIG. 8) includes a session box **571** containing the same information regarding Provider, Facility, Date and Time of appointment as the Session Maintenance window **56**. Additional information is found in the CPT codes **572** and Diagnoses

573 boxes; should additional information be desired to be entered in these boxes, the Add from CPT Table 573 or Add from Diagnoses Table 574 buttons can be clicked, which launch windows containing a selection table, respectively, the Procedure Code Table or the Select Diagnosis table. The system will issue a warning if either the CPT code or the diagnosis is not approved on the patient's treatment plan. The CPT codes 572 must be linked to a Diagnosis 573 with the use of the left-pointing arrow 575, which copies the selected diagnosis under the CPT code. Without this link being made, the session cannot be posted for billing. This link is also important when it is desired to print of claim form, such as an HCFA 1500, which is used to submit claim on paper, under conditions in which billing is not performed electronically.

The treatment plan for a patient may be viewed or a new plan created by clicking on the appropriate icon 532 on the Patient Master window 52 (FIG. 4), which brings up the Treatment Plan window 58, shown containing an exemplary treatment plan box 581 in FIG. 9. When a plan is first created, by clicking on the Add button 588, a new case window appears, into which should be entered case information and additional demographic information and comments as desired. A provider can be assigned to the case by selecting one from a provider list.

A summary of managed care sessions appears on the lower right of the treatment plan window 58, with a Case Sessions box 582 and a Total Sessions box 585 containing numbers of Approved 583,586 and Used 584,587 Sessions, respectively.

In order to assign a plan element to the treatment plan, the Add button 588 is clicked on the Treatment Plan window, which brings up a list of Provider Plan Items 59 that have been approved for the chosen provider, an exemplary list being illustrated in FIG. 10. Clicking on one of these items brings up the associated screen; for example, selecting the "Medications" option 591 brings up the associated window 54 (FIG. 5).

Upon completion of a session, a billing may be initiated by returning to the Patient List window 51 (FIG. 3) and using a drop-down menu under the menu bar item "Billing" 510, from which the user may navigate to a patient accounts window, from which may be brought up for viewing such information as the patient's account ledger, insurance information, and outstanding charges. Clinical charges are automatically generated by the system upon linking a CPT code to a diagnosis and also by scheduling a new appointment. These charges can then be posted, either individually or in batch mode, by selecting the appropriate buttons within the billing

module. Upon posting, the charges are uploaded when desired to the host site **20** for processing, where they are checked for automatic approval or referred to a case manager if necessary.

This upload of patient information to the host site **20** is preferably filtered as desired by the provider **30** to include only those data to which the host is entitled, for example, the results of questionnaires and/or tests specifically requested by the host treatment plan. Other data, such as session notes in narrative form, may be withheld if deemed appropriate by the provider. Alternatively, the selection of data to be sent can be defined by the system. As an example, the system may be designed to filter out such information as: provider personal (spouse information), questionnaires and tests administered that do not belong to the host and the clinician's personal notes.

Patient Treatment

Once the patient demographic data and treatment plan are resident in the provider computer **32**, treatment can be initiated. A flowchart of an exemplary course of treatment is illustrated in FIG. 11, which expands upon step **812** of FIG. 1.

In step **811**, the therapist looks up the patient's electronic chart, from which the treatment plan is looked up in step **830**. The treatment plan (FIGS. 9 and 10) may include such features as a diagnosis, recommended medication, and a determination of level of care (e.g., outpatient), problem(s), behavior(s), therapy variables, tests, and questionnaires.

If a test is scheduled (step **831**), it should be administered and scored (step **832**); if a questionnaire is scheduled (step **833**), it should be administered and the results stored (step **834**).

The therapist should also determine if a new element is needed in the treatment plan (step **835**), and add it if needed (step **836**); if an element should be edited (step **837**), this should be performed (step **838**). Finally, the problem(s) should be evaluated at step **813**.

It should be noted that, if a new element is deemed by the therapist to be needed, approval may need to be sought from the host. This occurs as indicated in FIG. 1, beginning at step **808**.

From the Session Maintenance screen **56** (FIG. 7) the provider can access and edit any of a set of linked screens related to the treatment plan:

The Medication screen **54** can be brought up by clicking the Enter button **567** in the Medication box **566**. Here the provider can review dosage, quantity, refill, start dates, expiration

dates, route of administration, reason for prescribing, and reason for discontinuing a medication. Scrolling through the medications list **541** causes the information in the respective fields to correspond to the medication selected.

The Problem/Behavior Entry screen **60** (FIG. 12) is brought up by clicking the Enter button **578** in the Problems/Therapy box **576**. Each item in the list **601** has associated with it a behavioral anchor **602** that facilitates precision in rating. The anchor can be accessed by clicking the Anchor button **603**. Upon intake, the therapist gives the patient an initial rating "I" **604** and a goal rating "G" **605**. In subsequent sessions the therapist records the most current rating "✔" **606**, and the previous rating "P" **600** is also displayed.

Behaviors/problems can be added to the treatment plan by clicking the Add button **607**, which brings up a Problem/Behavior Table **61** (FIG. 13), can be deactivated **608** if goal attainment has been achieved, or can be reactivated **609** if problems/behaviors reemerge.

The Problem/Behavior Table **61** (FIG. 13) is used to add and rate items for the Problem/Behavior Entry screen **60**. Once a particular behavior **611** is selected from the list **615**, the Add button **612** is clicked. The letter "F" next to a behavior name indicates that it is measured by frequency; the letter "S," by severity. The anchors are viewed for the selected behavior by clicking the View Anchors button **613**; likewise for the Linked Behaviors button **614**. The problems list **615** comprises a tree-structured table, wherein subentries are displayed upon selecting a higher-level head.

The Therapy Information screen **62** (FIG. 14) is brought up by clicking the Enter button **577** in the Problems/Therapy box **576** of the Session Maintenance screen **56**. Four types of information are available for describing or rating the therapy process: case complexity (not shown), which may be rated on a 1-5 Likert scale; therapist level of experience with various issues or interventions used in the session **621**, also rated on a 1-5 Likert scale; common factors in psychotherapy **622**, comprising 22 events that can take place in various types of psychotherapy, selected ones of which ratable as to their relative contribution to the effectiveness of a given session; and therapy types **623**, wherein the relative significance of various generic interventions or specific techniques associated with various schools of thought are rated to assess the relative contribution of the effectiveness of a given session.

As shown in FIG. 11 at step **832**, the patient's treatment plan may comprise an

administration of one or more tests, perhaps readministered at a preselected interval. The Test screen **63** (FIG. 13) is brought up by clicking the Entry button **569** in the Test/Questionnaire box **568** of the Session Maintenance screen **56**, and displays patient scores for tests recorded in a view-only format. Typically the test will have been administered separately, such as on paper, scored, and the results entered by clicking the Edit button.

The patient's treatment plan additionally may comprise an administration of one or more questionnaires, which here are defined as an instrument comprising items selected from a database of questions. The system of the present invention permits virtually unlimited flexibility in using, modifying, and creating such questionnaires. One feature is the ability to transmit questionnaires between the host and the provider; for example, a host may download a questionnaire for administration to a particular patient, in which case that questionnaire will become a part of the provider's database. The host may further designate that questionnaire as copyright protected, in which case that questionnaire would not be approved for use for patients not covered by that host. Likewise, a provider can create and indicate as copyright protected its own questionnaire(s) and prevent their being uploaded to a host site.

A flowchart of the process of choosing and creating a questionnaire is given in FIG. 16.

If a questionnaire is scheduled, which is indicated by the "yes" answer to decision step **833** of FIG. 11, and if the therapist determines that the scheduled questionnaire is adequate at step **840**, it is administered as indicated at step **834** in FIG. 11. An example of a questionnaire screen in the database is shown in FIG. 17, an adult intake questionnaire.

The questionnaire template **66** comprises a Question box **661** containing a scrollable list **662** of question topics. When a topic is highlighted **663**, the associated narrative question is displayed in the Guided Entry Question box **664**. A list of answers **665** is provided in the Answer box **666**, and the correct answer **667** is highlighted and clicked to enter it as a response. The answer list **665** may comprise descriptive or informational items, some of which may permit more than one answer, or a Likert rating, allowing only one response. The N/A button **668** defaults to the answer Does Not Apply. Notepad-type narrative comments may also be entered in the Question Comment box **669**.

If, however, the scheduled questionnaire is not deemed adequate, the therapist will typically want to administer a different one, and will search the select questionnaire screen at step

841 (FIG. 18). If one among these is deemed adequate at step 842, then it should be checked if that questionnaire is usable for that patient at step 892. If it is, that one is brought up and administered as at step 834 of FIG. 11. If it is not, for example, if the questionnaire is "owned" by a different host from that covering the present patient, the questionnaire database will need to be searched again at step 841 until a usable and acceptable questionnaire is located.

Another feature of the system is that it provides a warning if the selected questionnaire is not part of the approved treatment plan. In this case, approval should be sought from the host site for its administration.

It may happen, however, that none of those among the database of questionnaires is considered adequate, in which case a new questionnaire can be constructed with the tools of the present invention. A new questionnaire may be created entirely *de novo*, or edited from a cloned version of an existing questionnaire that approximates that which the therapist desires. The therapist brings up the Add New Questionnaire screen 67 (FIG. 19), gives it a name 671, number 672, style 673, and type 674 at step 843. Then questions are selected at step 844 from the master question table (FIG. 20), which contains all the questions resident at that time in the database. The master question table 64 may comprise questions initially resident the system, questions mandated by the host, and/or questions created by the provider. Each "question" within the master question table 64 contains all the possible answers that may be selected during session entry.

Each item 642 in the master question table 64 falls within one of six functional categories 641, comprising: single-answer questions, Likert-scaleable questions, multiple-answer questions, comment-only questions, calculation questions, and headers. Single-answer questions may include those requiring a yes/no answer, or a quantification of a characteristic, such as "ability to make work decisions." Multiple-answer questions allow for more than one answer, such as symptoms experienced. Comment-only questions permit narrative text to be entered. Calculation questions display the results of calculations such as test score summaries. Headers are used to indicate a new area of questioning that will appear in a narrative note, to be discussed in the following.

A question is chosen from the master question table 64 using the Select Questions screen 68 (FIG. 21), from which the questions 681 are chosen and added at step 845 to the new

questionnaire. If the questionnaire is now acceptable (step **846**), it can be administered as at step **834** in FIG. 11.

Another feature of the system of the present invention is that the user can also program in a custom guided-entry pattern, wherein the answer to a question determines whether the next question in sequence is asked. For example, if the patient has no history of alcohol abuse, the alcohol-related questions will be skipped.

It may also happen that questions are desired to be entered into the new questionnaire that are not a part of the master question table, determined at step **846**. In this case new questions are composed at step **847** with the use of the Add New Question screen **69** (FIG. 22), by naming the question **691**, forming the verbiage of the question **692**, indicating whether it is Likert scaleable **693**, what the entry option is **694**, and what the question type is **695**.

The questionnaire should now be in a form desired, and it can be administered as at step **834** in FIG. 11.

Reporting of Behavioral Health Care Outcomes

Individual Patient Reporting. The system of the present invention permits great flexibility in extracting and presenting data sorted and aggregated as directed by the user, whether the provider or host. Reports can be prepared directed to any one particular patient or with the use of cross-tabulations to collect data from a plurality of patients.

One of the reporting vehicles resident within the system comprises a means for forming and outputting a narrative report from a patient's data already entered into the system, as shown in the flowchart of FIG. 23. This figure proceeds from the step **834** of administering a questionnaire and storing the answers in FIG. 11, if a narrative report is desired (step **850**).

A narrative note format serves as the framework for outputting a narrative note. Each format is linked to a particular questionnaire (QN), although a questionnaire can be administered without choosing or creating a narrative note format. The linkage can be checked by accessing the questionnaire/narrative linkage screen (step **851**), which is a read-only list. If the linked narrative note format is acceptable as is (step **852**), the narrative report can be output, for example, to a printer or to a file, or it can be previewed on the screen (step **853**).

If the linked format is not acceptable, another existing format can be looked up (step **854**)

on the narrative notes format screen **70** (FIG. 24), which lists format IDs **701** and descriptions **702**. A format is selected (step **855**) by linking the questionnaire to that format, and a report is output (step **853**) under the direction of the format elements. Alternatively, a format that is close can be selected, cloned, and edited, or a new one can be created *de novo*. Preferably the therapist selects and clones an existing format (step **856**) such as the "New Clinical Report Format," which is set up as a template and is resident in the system and on which can be built a new narrative format. The new format is identified with a new name, description, and link to a questionnaire at step **857** and edited in the Edit Narrative Format screen **71** (FIG. 25) at step **858**.

Each format contains a series of discrete sentences that have words in angle brackets indicative of a datum that will be inserted from the patient's electronic chart when the report is output. For example, in the editing box **711** of FIG. 25, ⟨@Name (Last)-Patient@⟩ would fetch the patient's last name from the chart and insert it at that point in the narrative.

Editing the displayed format is accomplished by clicking on the appropriate icon from the tool bar menu **712** in FIG. 25. For example, selecting the "insert sentence" icon **713** permits the user to insert a title or new sentence into the format; similarly for the "insert word" icon **714**. A narrative form of a question can also be inserted by selecting the "insert question" icon **715**, which brings up a screen containing all the questions resident in the system and from which the answers thereto can also be accessed to ensure that they make sense in the context of the narrative.

Additionally, behaviors can be inserted by selecting the appropriate icon **716** that have been targeted for treatment for the patient. A summary is added into the narrative, including ratings such as goal and current session, goal and rating the last five sessions, or a description only.

The answers for selected questions can be used to create calculation fields within a questionnaire. Calculations can be performed within a narrative format utilizing Likert scales by selecting the "insert formula" icon **717**, which brings up a window permitting the user to create an arithmetic formula for aggregating question results, the result of which calculation is inserted into the narrative format at the chosen location. Similarly, test results can be inserted by selecting the "tests" icon **718**.

An example of a narrative format and the resulting narrative report for a particular patient

is shown in FIGS. 26A,B and 27A,B, respectively. It should be noted that the report need not be output at each administration of the questionnaire, but it can be output whenever desired.

An indication of how the system creates a report is provided by comparing the narrative note format shown in FIGS. 26A,B with the corresponding output report shown in FIGS. 27A,B. For example, item **261** reads: ⟨@Mr. or Mrs.-Misc.@⟩ ⟨@Name (Last possessive)-Patient@⟩ attitude was ⟨@Attitude-Client@⟩. To create this sentence the system thus must retrieve three data items from the patient's electronic chart, and yields the report sentence **271**: Dr. Sample-Patient's attitude was overly solicitous, provocative and resistive.

Another important feature of the present invention is a behavioral outcomes measurement (BOM) system, which comprises a means for graphically tracking problem and behavior Likert ratings and questionnaire Likert ratings for a particular patient. In addition, the medications and types of interventions can be superimposed upon the graphs, permitting great flexibility in outcomes presentation.

A flowchart of the BOM system is presented in FIG. 28. Typically such a graph will be desired following a plurality of treatment sessions, such as after a problem evaluation at step **813** of FIG. 1.

There are two types of graph that can be made with a preferred embodiment of the system of the present invention, although these types are not intended to be limiting: a line graph **74**, such as illustrated in FIG. 29, or a bar graph **75**, such as illustrated in FIG. 30. Which graph type is desired is chosen at step **860**. Other options are also available, such as color and the time span and dates to be visualized.

The therapist can make decisions for graph elements by selecting the appropriate icon from the tool bar menu on FIGS. 29 and 30. Those referred to herein are shown in FIG. 29. The therapist can decide whether to graph problems and behaviors at step **861**; if so, one or more is selected at step **862** for presentation (icon **741**). A decision whether to graph Likert-scaled questionnaire items is made at step **863**; those desired are selected at step **864** (icon **742**). A decision whether to graph interventions and/or therapies is made at step **865**; those desired are selected at step **866** (icon **743**). Finally, a decision whether to graph medications is made at step **867**; those desired are selected at step **868** (icon **744**). The graph is generated at step **869**.

It should be noted that these decision steps need not occur in the order presented in FIG.

28. In FIGS. 29 and 30 are the line graph and bar graph for an exemplary case illustrating three items (**745**) being graphed on a Likert (1-5) scale with time and a simultaneous presentation of two medications (**746**) tracking the time during which they were being prescribed.

Followup Questionnaires and Data Extraction. Additional features of the system of the present invention comprise means for extracting and aggregating data for a plurality of patients, typically sorted by one or more criteria, for the purposes of accumulating patient statistics and thereby enabling treatment to be optimized.

The system comprises means for creating a followup questionnaire group, for performing such functions as assessing treatment, patient satisfaction, and referral source tracking, although these are not intended to be limiting. This system module can be used to create lists of patients, providers, and/or referrals who will receive a followup questionnaire, typically on hard copy via mailing. Such questionnaires can be constructed at the host or the provider site, although those issuing from the provider site will likely encompass only those patients within its database.

A new followup questionnaire group is created as illustrated in the flowchart of FIG. 31 with the use of screen **76** (FIG. 32) and the accessing of the appropriate databases described previously. First it is decided at step **870** whether an already-created questionnaire is to be used. If not, the followup questionnaire is provided with a title **761** at step **871**. A recipient group **762** is chosen at step **872**, which may include, for example, patients, providers of record, providers of session, or referrals. A sample size **763** is chosen at step **873**, which may be "all" or some maximum number, in which case the system will randomly select a group of individuals who meed the group size chosen. Finally, a time frame **764** is chosen at step **874** during which the treatment occurred.

A choice can be made at step **875** to impose additional filters, which occurs at step **876**. Sorting can be accomplished by the system on the basis of any of the tables in the database, including the master question table, questionnaires, problems, and behaviors. For example, the user can choose to select all patients receiving zoloft who have been treated for depression at a particular clinic.

Once all the choices have been made, the followup questionnaire group can be built at step **877** and mailing labels printed.

In similar fashion, data extraction can be accomplished as illustrated in the flowchart of

FIG. 33, generating files derived from queries of the databases. Thus the user can generate data extracts containing the results of searches based on user-defined specifications. The files created with this module can be imported into a spreadsheet, database, or statistical package for generating graphs and reports. As with the followup questionnaire group construction, criteria such as demographic data and clinical factors can be used to select a group of individuals for the query.

First it is decided at step **880** whether an already-created extract formula is to be used. If not, the new extract report is provided with a title at step **881**. A recipient group is chosen at step **882**, which may include, for example, patients, providers of record, providers of session, or referrals. A sample size is chosen at step **883**, which may be "all" or some maximum number, in which case the system will randomly select a group of individuals who meed the group size chosen. Finally, a time frame is chosen at step **884** during which the treatment occurred.

Next the extract file criteria are chosen at step **885** from a screen **77** illustrated in FIG. 34. This embodiment of the table comprises a tree-browser window **771**, from which criteria **772** are chosen that will form the basis for creating the extract file list (e.g., age range, patient sex, employees, etc.). This procedure builds the patient list from which specific data will be extracted.

When an item has been selected, a list of output selections are provided, from which a category of information may be chosen at step **886**. For example, if "patient medication" was chosen at step **885**, the user may select "Prozac™." Steps **885** and **886** may be repeated as needed to add filter criteria.

A choice can be made at step **887** to impose additional filters, which occurs at step **888**. Sorting can be accomplished, as for the followup questionnaire, by the system on the basis of any of the tables in the database, including the master question table, questionnaires, problems, and behaviors. Once all the choices have been made, the extract data can be built at step **889** and output to a designated file.

It may be appreciated by one skilled in the art that additional embodiments may be contemplated that are not necessarily limited to the behavioral health care arena, including an analogous system and method for any medical or occupational/physical therapy information system.

In the foregoing description, certain terms have been used for brevity, clarity, and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for description purposes herein and are intended to be broadly construed. Moreover, the embodiments of the apparatus illustrated and described herein are by way of example, and the scope of the invention is not limited to the exact details of construction.

Having now described the invention, the construction, the operation and use of preferred embodiment thereof, and the advantageous new and useful results obtained thereby, the new and useful constructions, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

What is claimed is:

1. A method for reporting behavioral health care data comprising the steps of:

providing a database including:

a plurality of numerical answers to a behavioral health assessment question administered to a patient a plurality of spaced-apart times;

a time history of at least one treatment administered to the patient;

accessing the database and selecting the answers to the question;

accessing the database and selecting a time history of at least one treatment;

displaying a graph of the answers against a time axis; and

displaying the selected time history along with the graph against the time axis, for permitting an indication of an effect of the treatment upon the answer.

2. The method recited in Claim 1, wherein the treatment is selected from a group consisting of a medication, an intervention, and a therapy.

3. The method recited in Claim 1, wherein the answer comprises an assessment of a behavioral problem.

4. The method recited in Claim 3, wherein the behavioral problem includes one or more of the behavioral conditions of depression, anxiety, hopelessness, suicide ideation, attention-deficit disorder, an eating disorder, substance abuse, and obsessive-compulsive disorder.

5. The method recited in Claim 1, further comprising the step, prior to the graph-displaying step, of selecting a type of graph to be displayed, the type of graph selected from a group consisting of a bar graph and a line graph.

6. The method recited in Claim 1, wherein the database-providing step comprises the steps of:

constructing and storing an electronic chart for the patient;

conducting a series of behavioral health care sessions with the patient;

evaluating the behavioral health of the patient by administering the question at a first session to provide an initial numerical rating and during at least one further session to provide an indication of patient progress; and

entering the answers into the patient chart.

7. A clinical information system for integrating assessment, intervention, and progress indicators in a behavioral health care program comprising:

database means for receiving one or more assessment, intervention, and progress indicators;

means with the database means for providing one or more graphic presentations of the assessment, intervention, and progress indicators; and

means with the database means for administering a questionnaire on patient status and for updating the indicator information and the corresponding graphic presentations.

8. The information system recited in Claim 7, further comprising data entry means for entering real-time patient responses to the questionnaire.

9. The information system recited in Claim 7, wherein the questionnaire includes assessments for one or more of the behavioral conditions of depression, anxiety, hopelessness, suicide ideation, attention-deficit disorder, an eating disorder, substance abuse, and obsessive-compulsive disorder.

10. A method for reporting behavioral health care and status of a patient comprising the steps of:

providing a database comprising at least one patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

providing a database including at least one narrative note format, the narrative

note format comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

selecting a narrative note format from the database;

integrating the narrative note format with the patient chart data pointed to by the link indicators; and

outputting a report comprising a narrative-style text including information specific to the patient from the patient chart.

11. The method recited in Claim 10, wherein:

the answer comprises a numerically scaled answer;

the integrating step further comprises translating the numerically scaled answer into text, for forming a narrative report having the linked assessment answer in verbal form.

12. The method recited in Claim 11, wherein the translating step comprises correlating the numerically scaled answer to an anchor.

13. The method recited in Claim 11, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating step further comprises utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

14. A method for creating a custom report on the behavioral health care and status of a patient comprising the steps of:

providing a database resident in a computer, the database comprising at least one

patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

composing a narrative note format comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

storing the narrative note format in the computer;

integrating the narrative note format with the patient chart data pointed to by the link indicators; and

outputting a report comprising the integrated narrative-style text including information specific to the patient from the patient chart.

15. The method recited in Claim 14,

the answer comprises a numerically scaled answer;

the integrating step further comprises translating the numerically scaled answer into text, for forming a narrative report having the linked assessment answer in verbal form.

16. The method recited in Claim 15, wherein the translating step comprises correlating the numerically scaled answer to an anchor.

17. The method recited in Claim 14, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating step further comprises utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

18. A system for reporting behavioral health care and status of a patient comprising:

a computer having resident therein a database comprising:

at least one patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

at least one narrative note format, the narrative note format comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

input means for displaying a list of narrative note formats in the database and for selecting a narrative note format therefrom;

software means for integrating the narrative note format with the patient chart data pointed to by the link indicators; and

means for outputting a report comprising a narrative-style text including information specific to the patient from the patient chart.

19. The system recited in Claim 18, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating means further comprises means for utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

20. A system for creating a custom report on the behavioral health care and status of a patient comprising:

a computer having resident therein a database comprising at least one patient electronic chart including:

patient demographic information;

an answer to a behavioral health assessment question administered to the patient;

input means for composing and entering a narrative note format into the computer comprising:

fixed text material; and

link indicators interspersed within the text material having means for pointing to specific data in the chart database, at least one link indicator related to patient demographic information and at least one link indicator related to the assessment answer;

software means resident in the computer for integrating the narrative note format with the patient chart data pointed to by the link indicators; and

means for outputting a report from the computer comprising the integrated narrative-style text including information specific to the patient from the patient chart.

21. The system recited in Claim 20, wherein:

the answer comprises a plurality of numerically scaled answers;

the narrative note format further includes a calculation indicator having a plurality of link indicators to, and a formula for, directing an arithmetic operation on at least two numerically scaled answers; and

the integrating means further comprises means for utilizing the formula to perform the arithmetic operation on the indicated numerically scaled answers for including a result therefrom in the report.

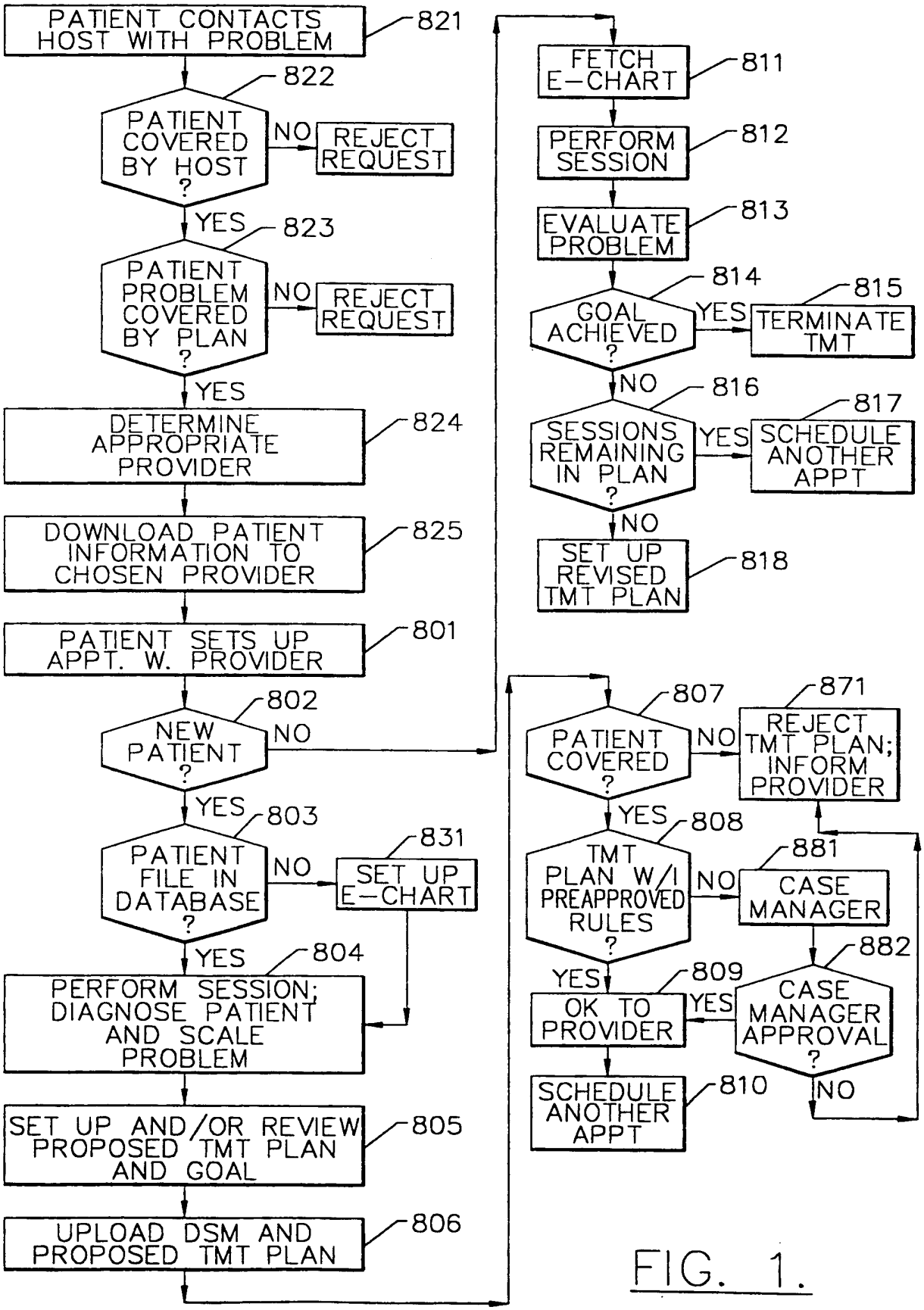

PATIENT CONTACTS HOST WITH PROBLEM
821
PATIENT COVERED BY HOST ?
822
NO
REJECT REQUEST
YES
PATIENT PROBLEM COVERED BY PLAN ?
823
NO
REJECT REQUEST
YES
DETERMINE APPROPRIATE PROVIDER
824
DOWNLOAD PATIENT INFORMATION TO CHOSEN PROVIDER
825
PATIENT SETS UP APPT. W. PROVIDER
801
NEW PATIENT ?
802
NO
YES
PATIENT FILE IN DATABASE ?
803
NO
831
SET UP E-CHART
YES
PERFORM SESSION; DIAGNOSE PATIENT AND SCALE PROBLEM
804
SET UP AND/OR REVIEW PROPOSED TMT PLAN AND GOAL
805
UPLOAD DSM AND PROPOSED TMT PLAN
806
FETCH E-CHART
811
PERFORM SESSION
812
EVALUATE PROBLEM
813
GOAL ACHIEVED ?
814
YES
TERMINATE TMT
815
NO
SESSIONS REMAINING IN PLAN ?
816
YES
SCHEDULE ANOTHER APPT
817
NO
SET UP REVISED TMT PLAN
818
PATIENT COVERED ?
807
NO
REJECT TMT PLAN; INFORM PROVIDER
871
YES
TMT PLAN W/I PREAPPROVED RULES ?
808
NO
CASE MANAGER
881
YES
OK TO PROVIDER
809
YES
CASE MANAGER APPROVAL ?
882
NO
SCHEDULE ANOTHER APPT
810

FIG. 1.

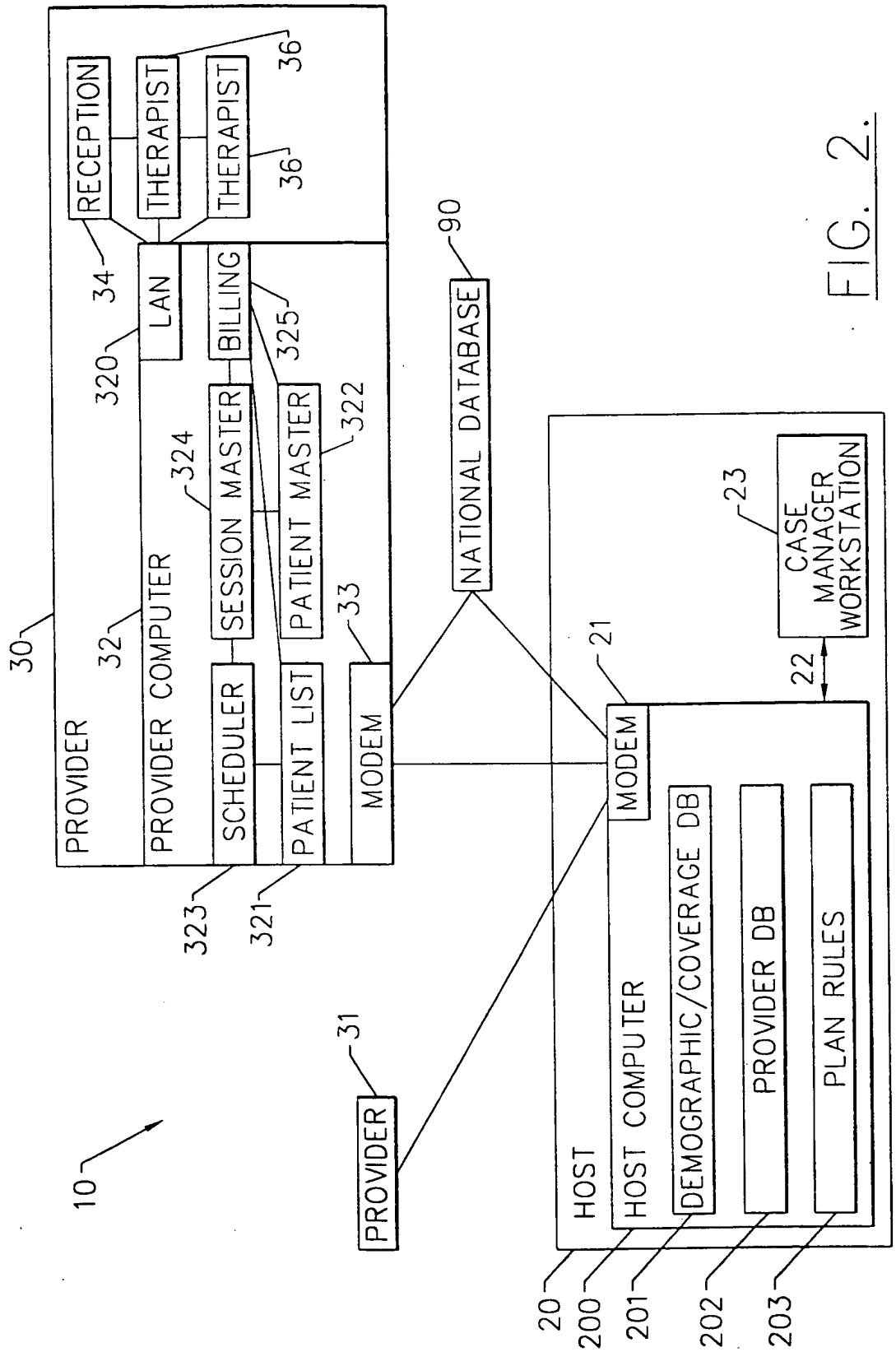

10
PROVIDER
30
PROVIDER COMPUTER
32
RECEPTION
34
THERAPIST
36
THERAPIST
36
LAN
320
BILLING
325
SESSION MASTER
324
PATIENT MASTER
322
SCHEDULER
323
PATIENT LIST
321
MODEM
33
NATIONAL DATABASE
90
PROVIDER
31
HOST
HOST COMPUTER
MODEM
21
DEMOGRAPHIC/COVERAGE DB
PROVIDER DB
PLAN RULES
CASE MANAGER WORKSTATION
23
22
20
200
201
202
203

FIG. 2.

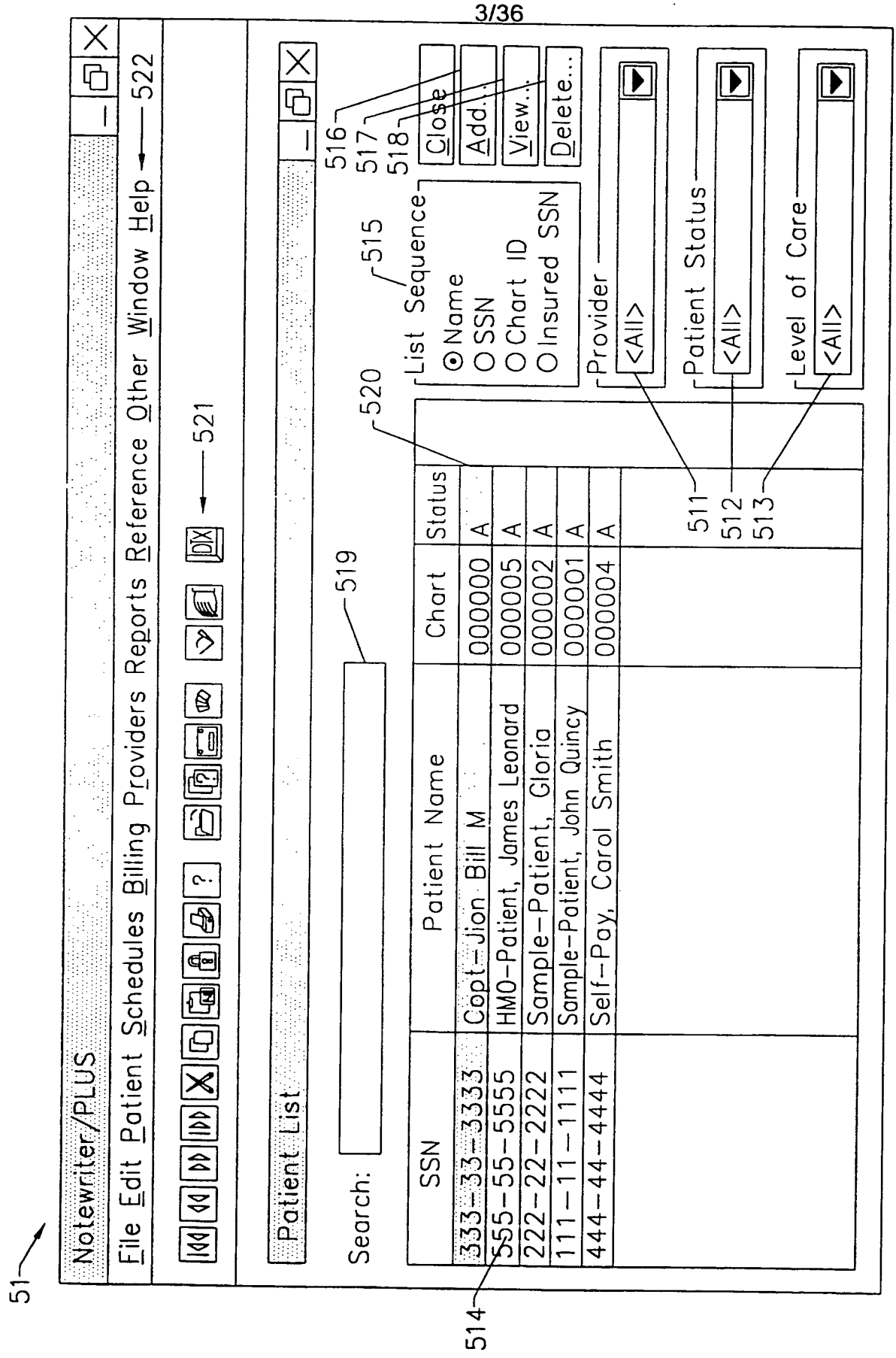

51
Notewriter/PLUS
File Edit Patient Schedules Billing Providers Reports Reference Other Window Help
522
521
Patient List
Search:
519
520
SSN
Patient Name
Chart
Status
333-33-3333
Copt-Jion Bill M
000000
A
555-55-5555
HMO-Patient, James Leonard
000005
A
222-22-2222
Sample-Patient, Gloria
000002
A
111-11-1111
Sample-Patient, John Quincy
000001
A
444-44-4444
Self-Pay, Carol Smith
000004
A
514
List Sequence
Name
SSN
Chart ID
Insured SSN
515
516
517
518
Close
Add...
View...
Delete...
Provider
<All>
Patient Status
<All>
Level of Care
<All>
511
512
513

FIG. 3.

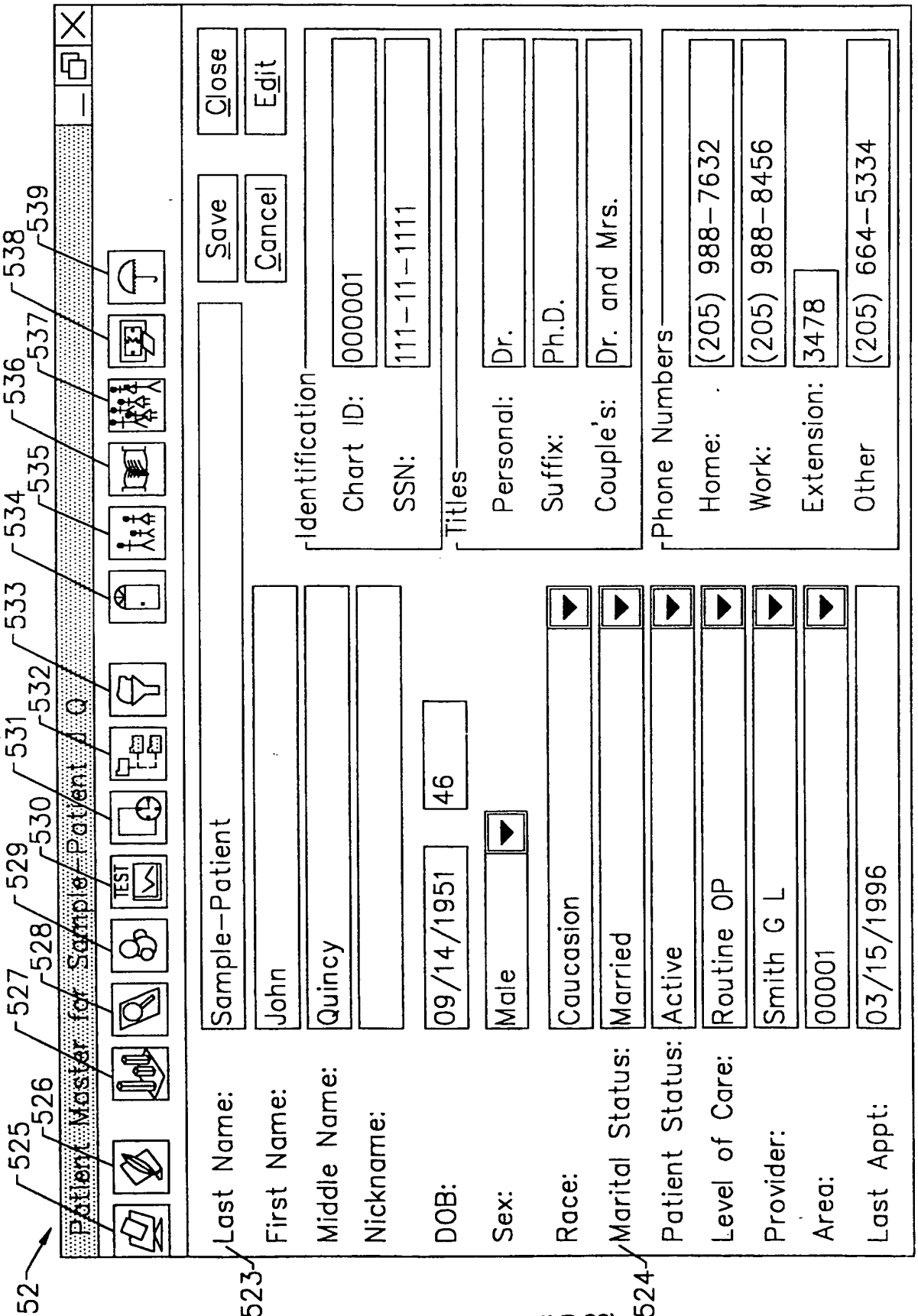


FIG. 4.

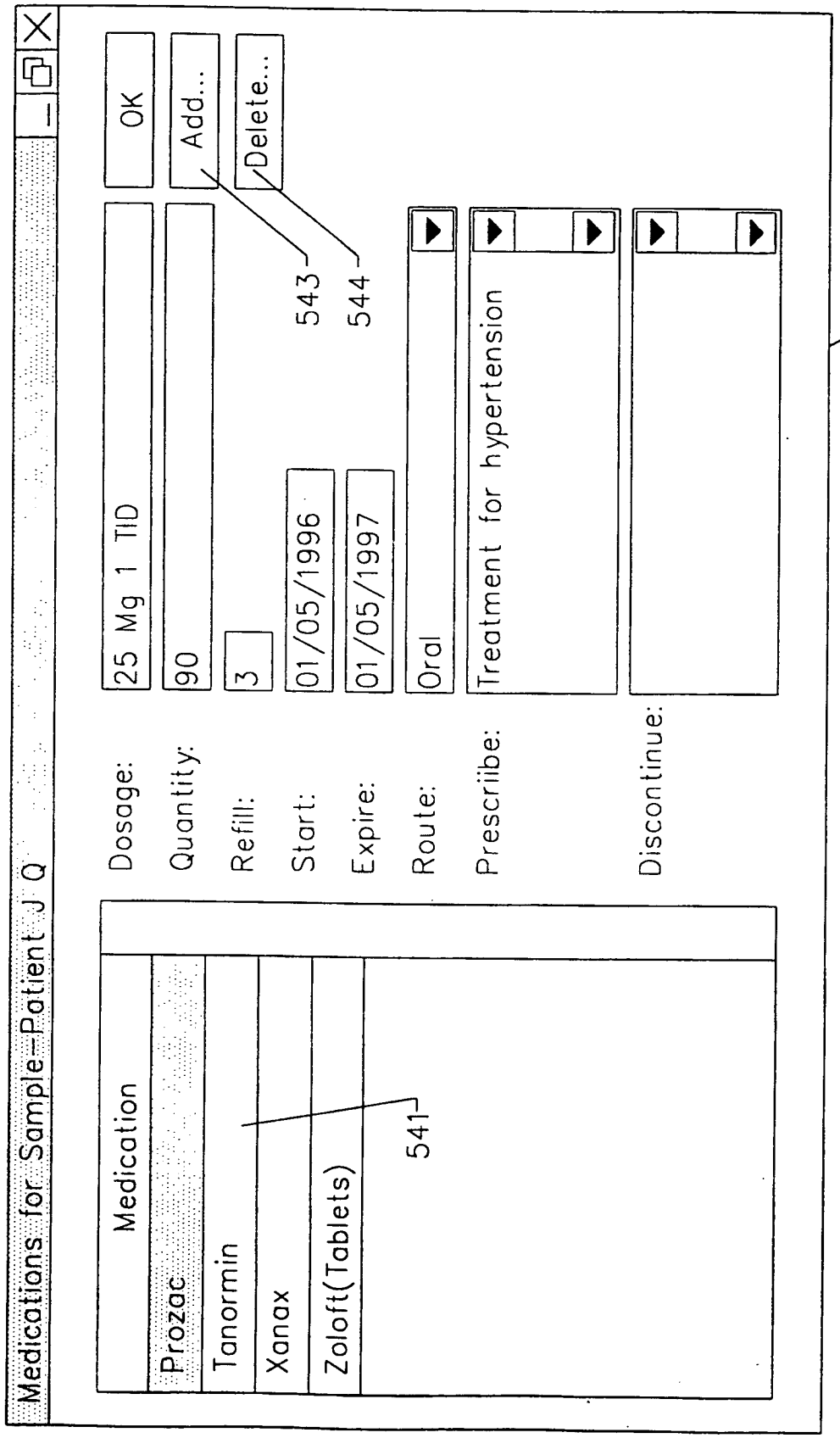

Medications for Sample-Patient J Q
Medication
Prozac
Tanormin
Xanax
Zoloft(Tablets)
541
Dosage:
25 Mg 1 TID
Quantity:
90
Refill:
3
Start:
01/05/1996
Expire:
01/05/1997
Route:
Oral
Prescribe:
Treatment for hypertension
Discontinue:
OK
Add...
Delete...
543
544
542
54

FIG. 5.

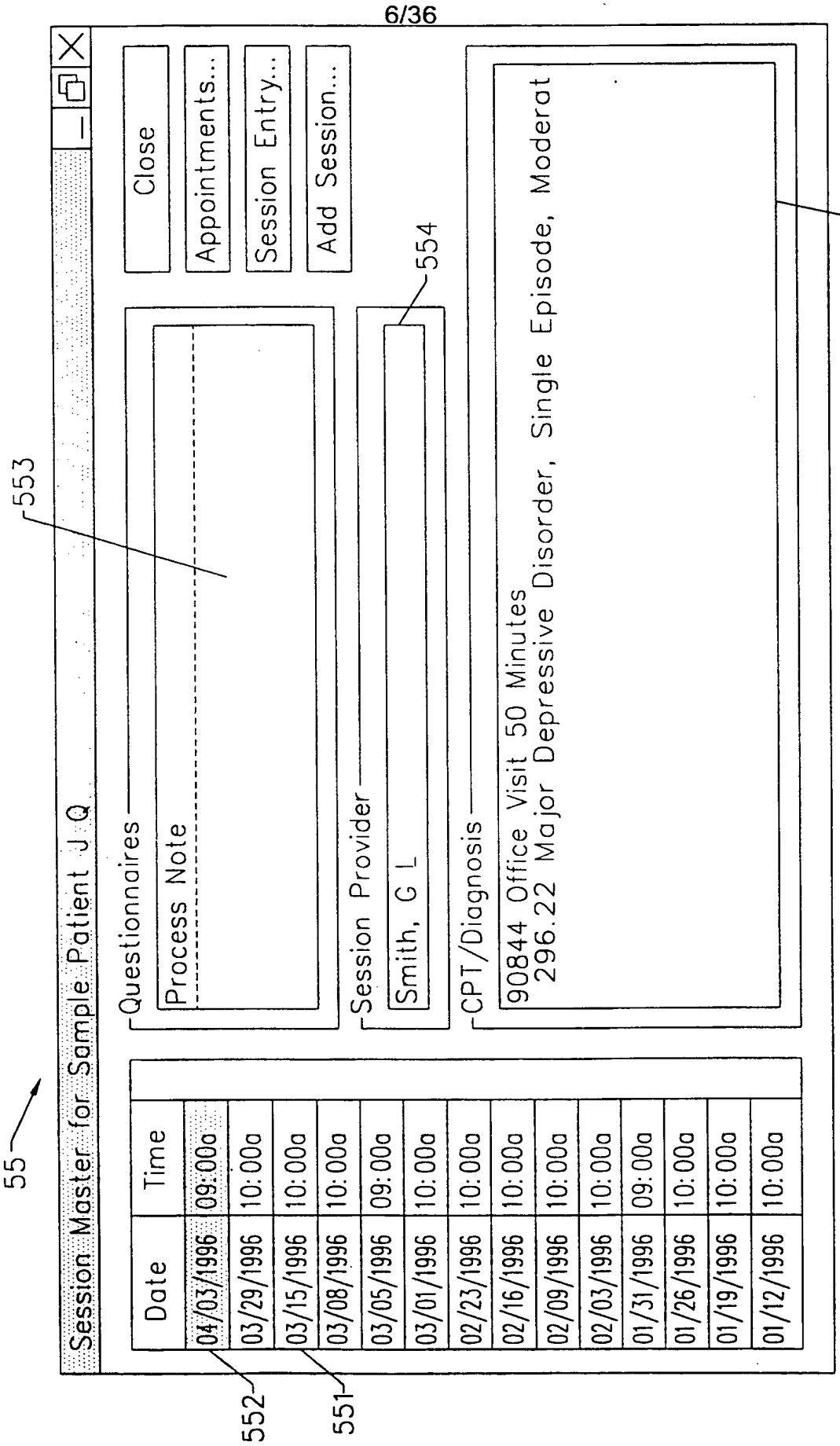

Session Master for Sample Patient J Q
Close
Appointments...
Session Entry...
Add Session...
Questionnaires
Process Note
Session Provider
Smith, G L
CPT/Diagnosis
90844 Office Visit 50 Minutes
296.22 Major Depressive Disorder, Single Episode, Moderat
Date
Time
04/03/1996 09:00a
03/29/1996 10:00a
03/15/1996 10:00a
03/08/1996 10:00a
03/05/1996 09:00a
03/01/1996 10:00a
02/23/1996 10:00a
02/16/1996 10:00a
02/09/1996 10:00a
02/03/1996 10:00a
01/31/1996 09:00a
01/26/1996 10:00a
01/19/1996 10:00a
01/12/1996 10:00a
55
551
552
553
554
555

FIG. 6.

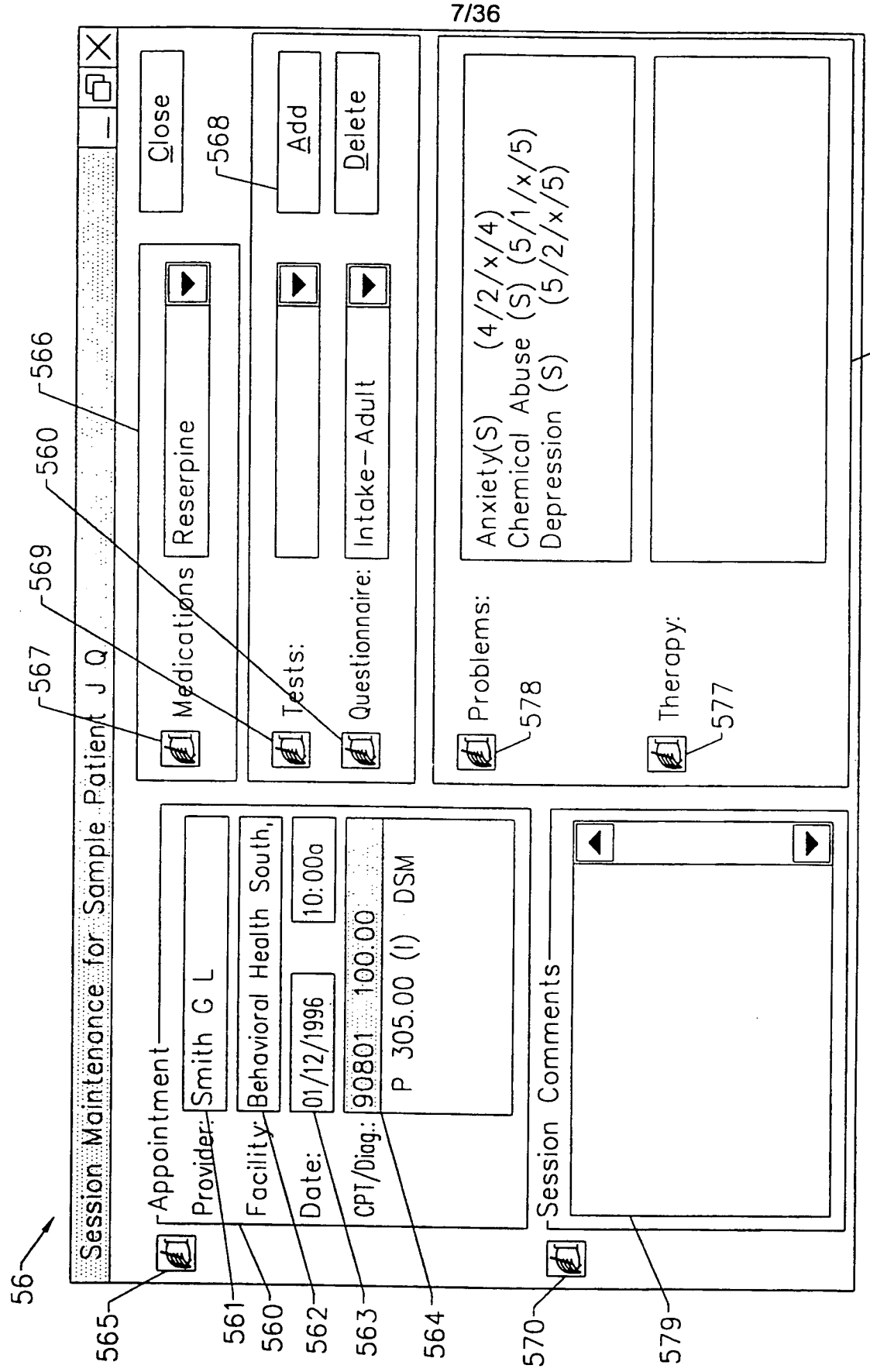

Session Maintenance for Sample Patient J Q
Close
568
Add
Delete
Medications
Reserpine
Tests:
Questionnaire:
Intake-Adult
Problems:
578
Anxiety(S) (4/2/x/4)
Chemical Abuse (S) (5/1/x/5)
Depression (S) (5/2/x/5)
Therapy:
577
576
566
560
569
567
Appointment
Provider:
Smith G L
Facility:
Behavioral Health South,
Date:
01/12/1996
10:00a
CPT/Diag.:
90801 100.00
P 305.00 (1) DSM
Session Comments
56
565
561
560
562
563
564
570
579

FIG. 7.

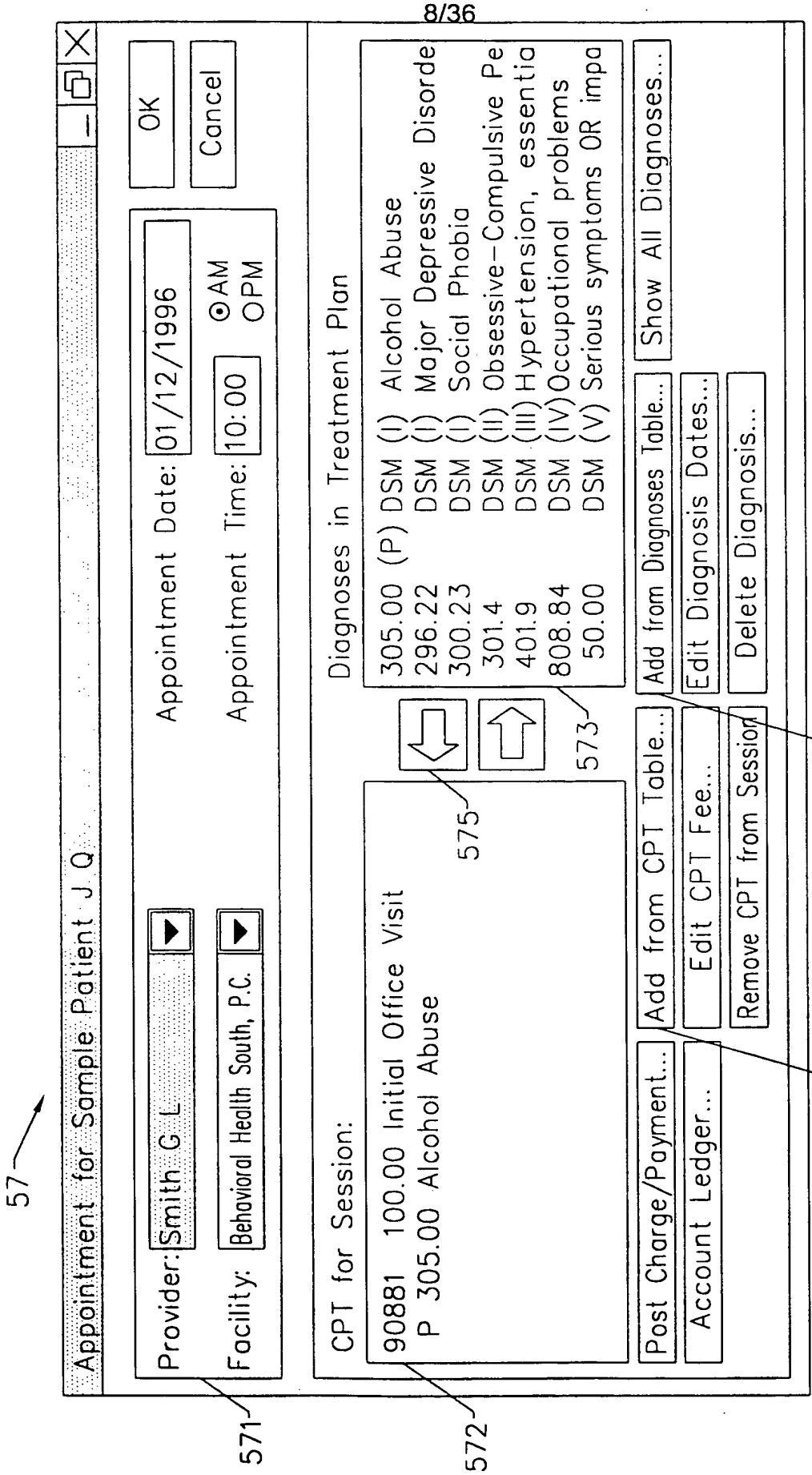

57
Appointment for Sample Patient J Q
Provider: Smith G L
Facility: Behavioral Health South, P.C.
Appointment Date: 01/12/1996
Appointment Time: 10:00
AM
PM
OK
Cancel
CPT for Session:
90881 100.00 Initial Office Visit
P 305.00 Alcohol Abuse
Diagnoses in Treatment Plan
305.00 (P) DSM (I) Alcohol Abuse
296.22 DSM (I) Major Depressive Disorde
300.23 DSM (I) Social Phobia
301.4 DSM (II) Obsessive-Compulsive Pe
401.9 DSM (III) Hypertension, essentia
808.84 DSM (IV) Occupational problems
50.00 DSM (V) Serious symptoms OR impa
Post Charge/Payment...
Account Ledger...
Add from CPT Table...
Edit CPT Fee...
Remove CPT from Session
Add from Diagnoses Table...
Edit Diagnosis Dates...
Delete Diagnosis...
Show All Diagnoses...
571
572
573
573
574
575
573

FIG. 8.

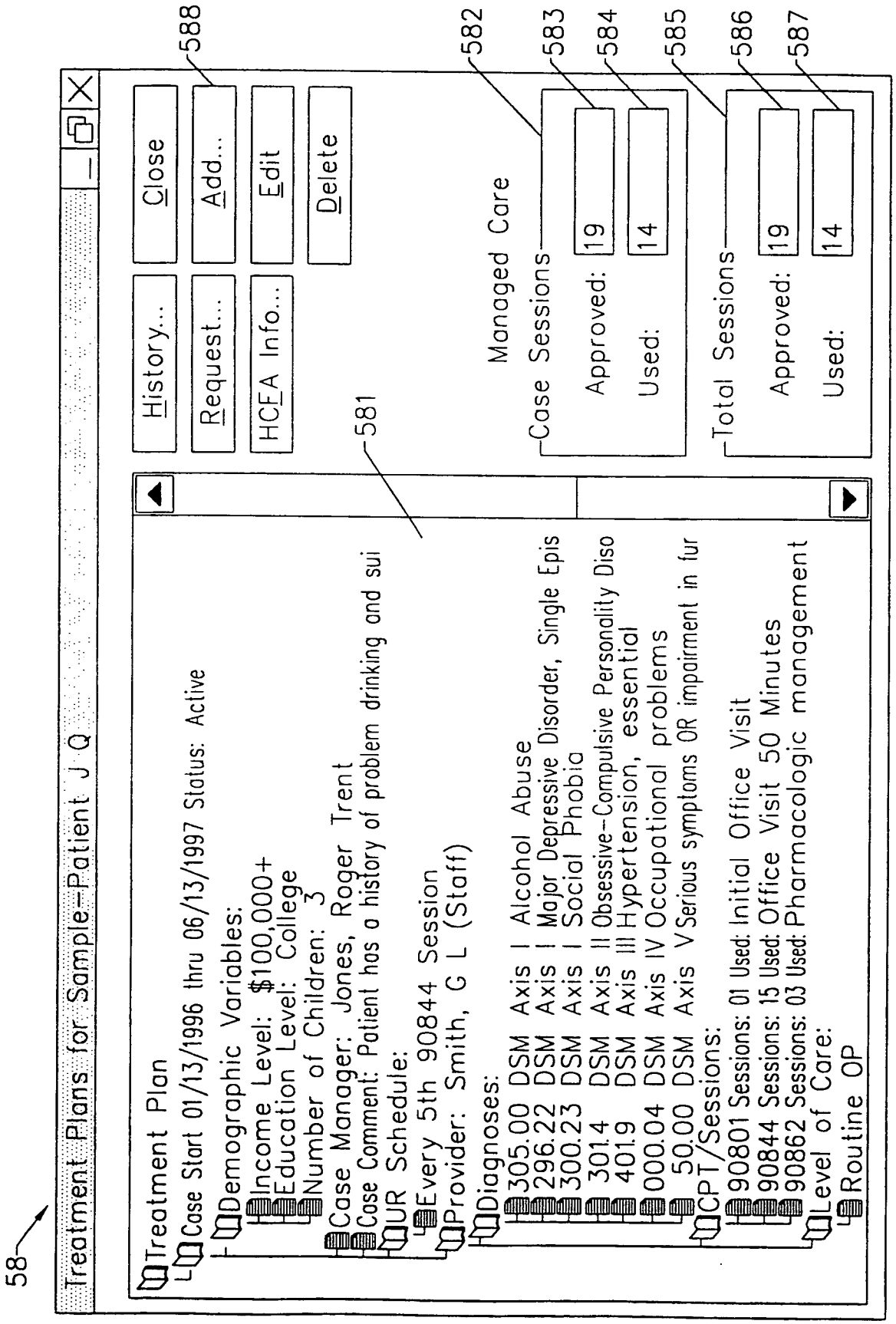

58
Treatment Plans for Sample-Patient J Q
Close
588
Add...
Edit
Delete
History...
Request...
HCFA Info...
582
583
584
585
586
587
581
Managed Care
Case Sessions
Approved: 19
Used: 14
Total Sessions
Approved: 19
Used: 14
Treatment Plan
Case Start 01/13/1996 thru 06/13/1997 Status: Active
Demographic Variables:
Income Level: $100,000+
Education Level: College
Number of Children: 3
Case Manager: Jones, Roger Trent
Case Comment: Patient has a history of problem drinking and sui
UR Schedule:
Every 5th 90844 Session
Provider: Smith, G L (Staff)
Diagnoses:
305.00 DSM Axis I Alcohol Abuse
296.22 DSM Axis I Major Depressive Disorder, Single Epis
300.23 DSM Axis I Social Phobia
301.4 DSM Axis II Obsessive-Compulsive Personality Diso
401.9 DSM Axis III Hypertension, essential
000.04 DSM Axis IV Occupational problems
50.00 DSM Axis V Serious symptoms OR impairment in fur
CPT/Sessions:
90801 Sessions: 01 Used: Initial Office Visit
90844 Sessions: 15 Used: Office Visit 50 Minutes
90862 Sessions: 03 Used: Pharmacologic management
Level of Care:
Routine OP

FIG. 9.

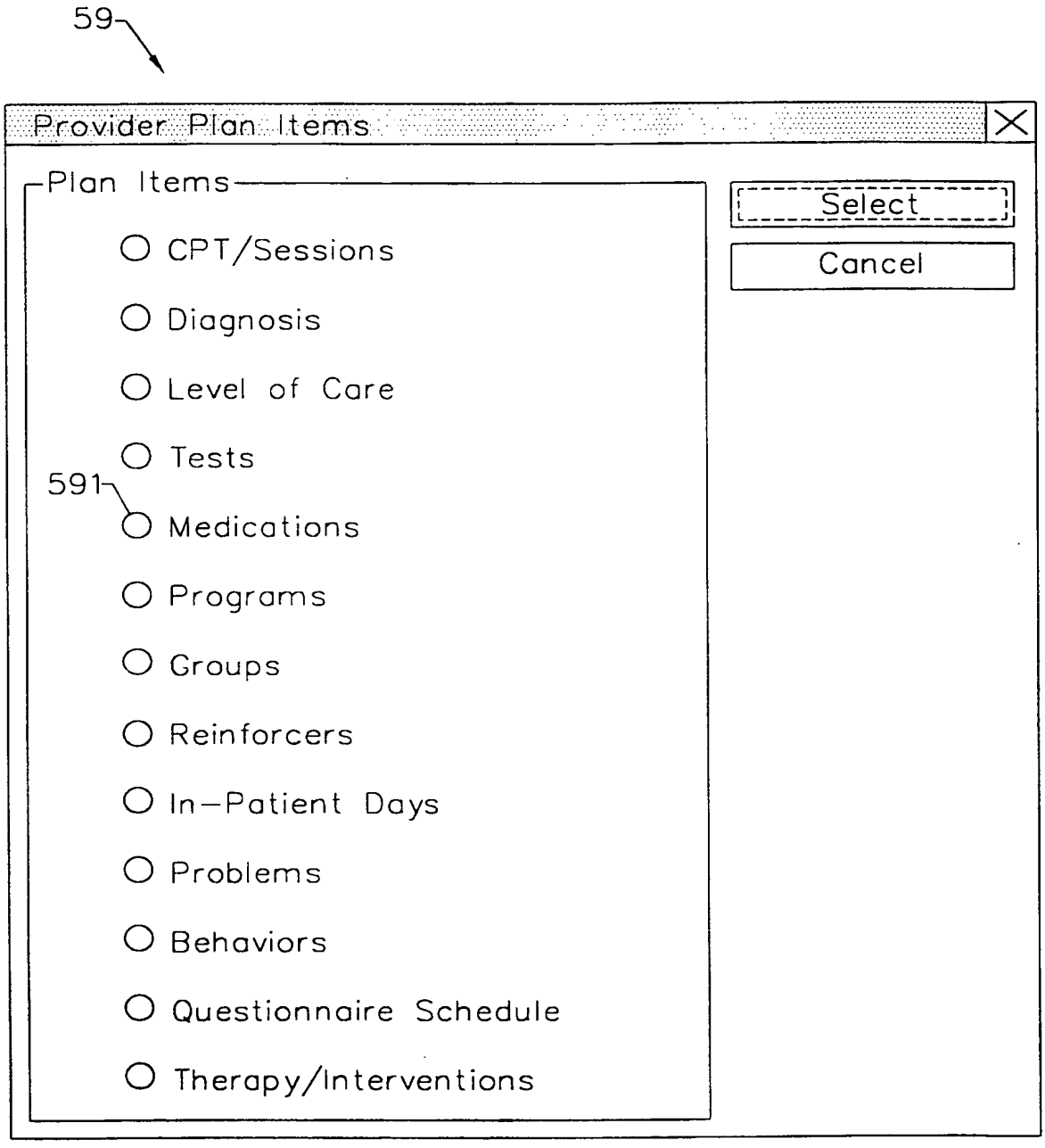

59
Provider Plan Items
Plan Items
CPT/Sessions
Diagnosis
Level of Care
Tests
591
Medications
Programs
Groups
Reinforcers
In-Patient Days
Problems
Behaviors
Questionnaire Schedule
Therapy/Interventions
Select
Cancel

FIG. 10.

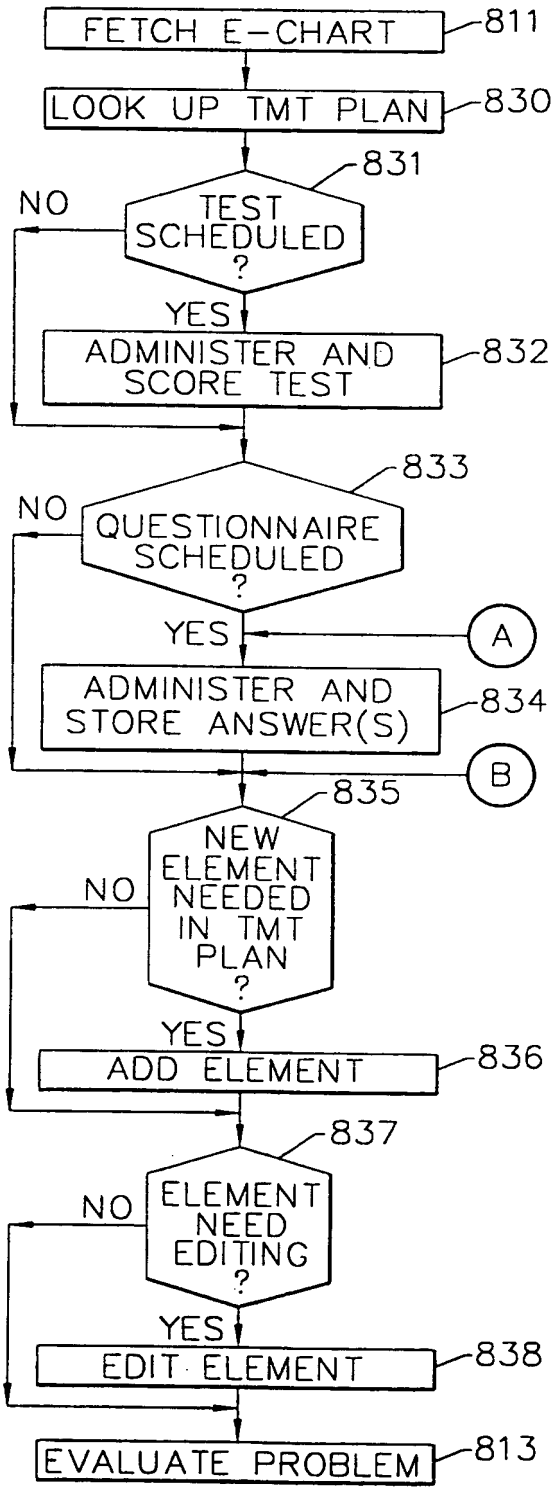

FETCH E-CHART
811
LOOK UP TMT PLAN
830
831
TEST SCHEDULED ?
NO
YES
ADMINISTER AND SCORE TEST
832
833
QUESTIONNAIRE SCHEDULED ?
NO
YES
A
ADMINISTER AND STORE ANSWER(S)
834
B
835
NEW ELEMENT NEEDED IN TMT PLAN ?
NO
YES
ADD ELEMENT
836
837
ELEMENT NEED EDITING ?
NO
YES
EDIT ELEMENT
838
EVALUATE PROBLEM
813

FIG. 11.

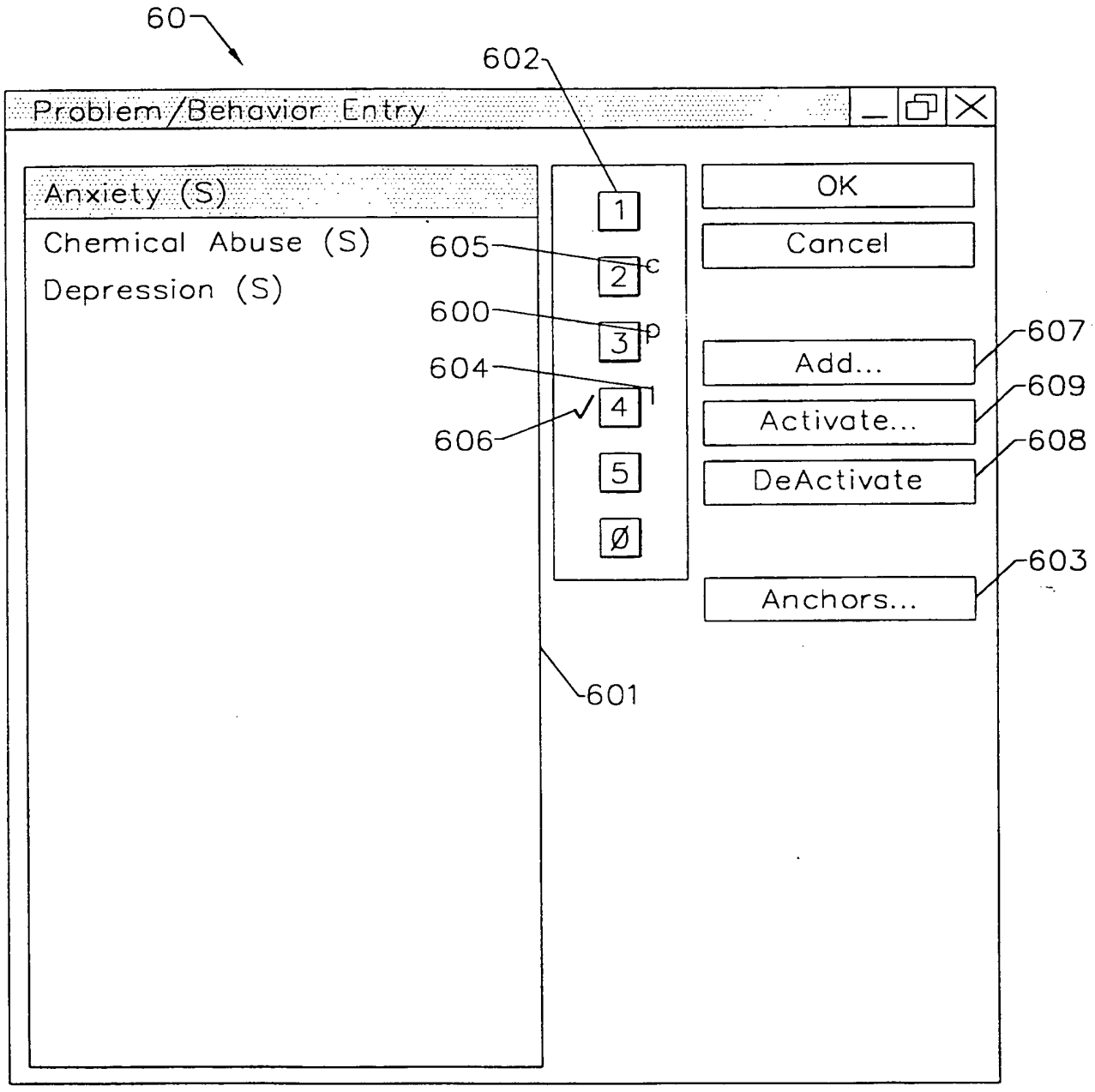

60
602
Problem/Behavior Entry
Anxiety (S)
Chemical Abuse (S)
Depression (S)
605
600
604
606
1
2
3
4
5
Ø
OK
Cancel
Add...
Activate...
DeActivate
Anchors...
607
609
608
603
601

FIG. 12.

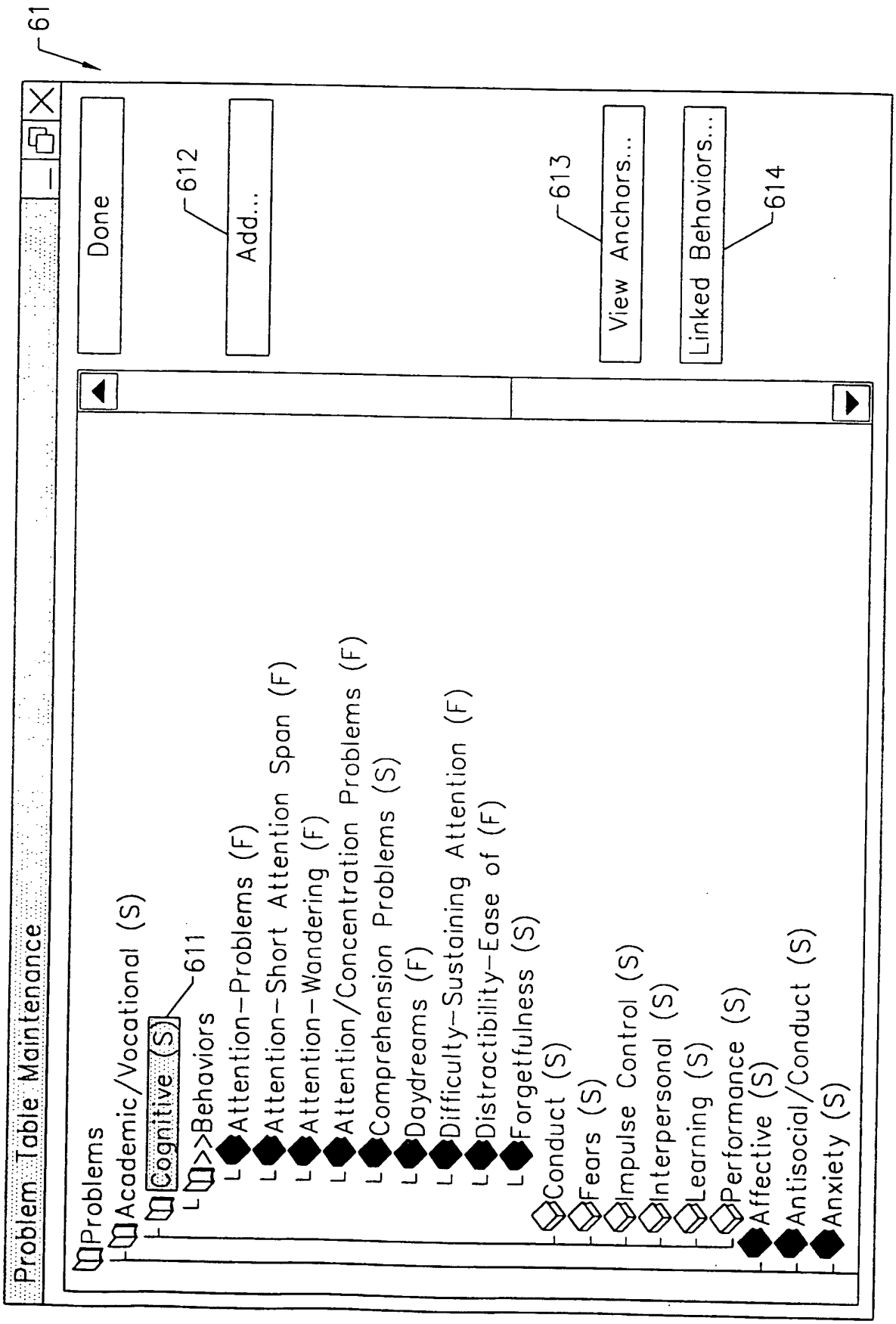

61
Problem Table Maintenance
Done
612
Add...
613
View Anchors...
614
Linked Behaviors...
Problems
Academic/Vocational (S)
Cognitive (S)
611
>>Behaviors
Attention-Problems (F)
Attention-Short Attention Span (F)
Attention-Wandering (F)
Attention/Concentration Problems (F)
Comprehension Problems (S)
Daydreams (F)
Difficulty-Sustaining Attention (F)
Distractibility-Ease of (F)
Forgetfulness (S)
Conduct (S)
Fears (S)
Impulse Control (S)
Interpersonal (S)
Learning (S)
Performance (S)
Affective (S)
Antisocial/Conduct (S)
Anxiety (S)

FIG. 13.

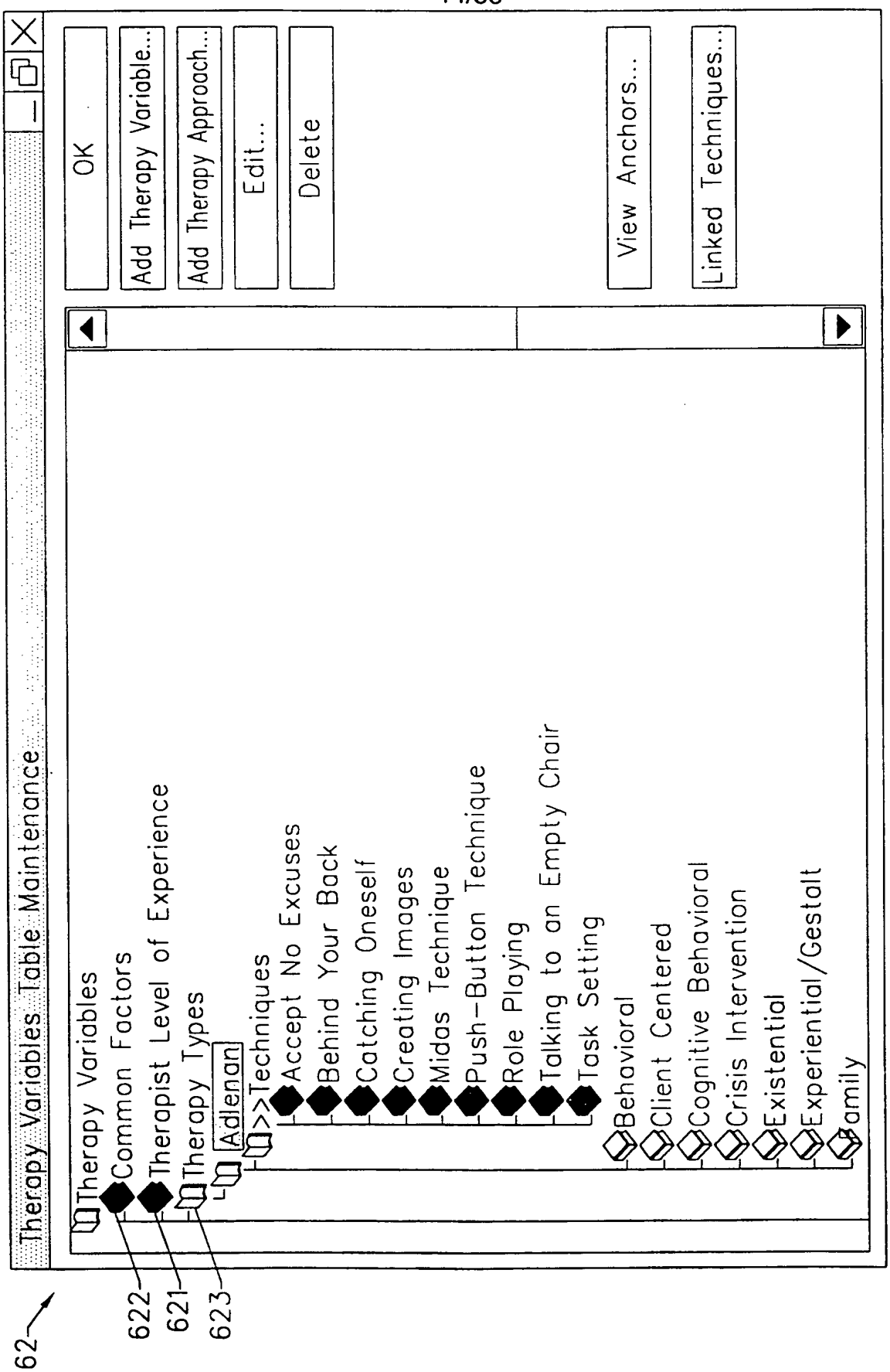

62
622
621
623
Therapy Variables Table Maintenance
Therapy Variables
Common Factors
Therapist Level of Experience
Therapy Types
Adlenan
>>Techniques
Accept No Excuses
Behind Your Back
Catching Oneself
Creating Images
Midas Technique
Push-Button Technique
Role Playing
Talking to an Empty Chair
Task Setting
Behavioral
Client Centered
Cognitive Behavioral
Crisis Intervention
Existential
Experiential/Gestalt
Family
OK
Add Therapy Variable...
Add Therapy Approach...
Edit...
Delete
View Anchors...
Linked Techniques...

FIG. 14.

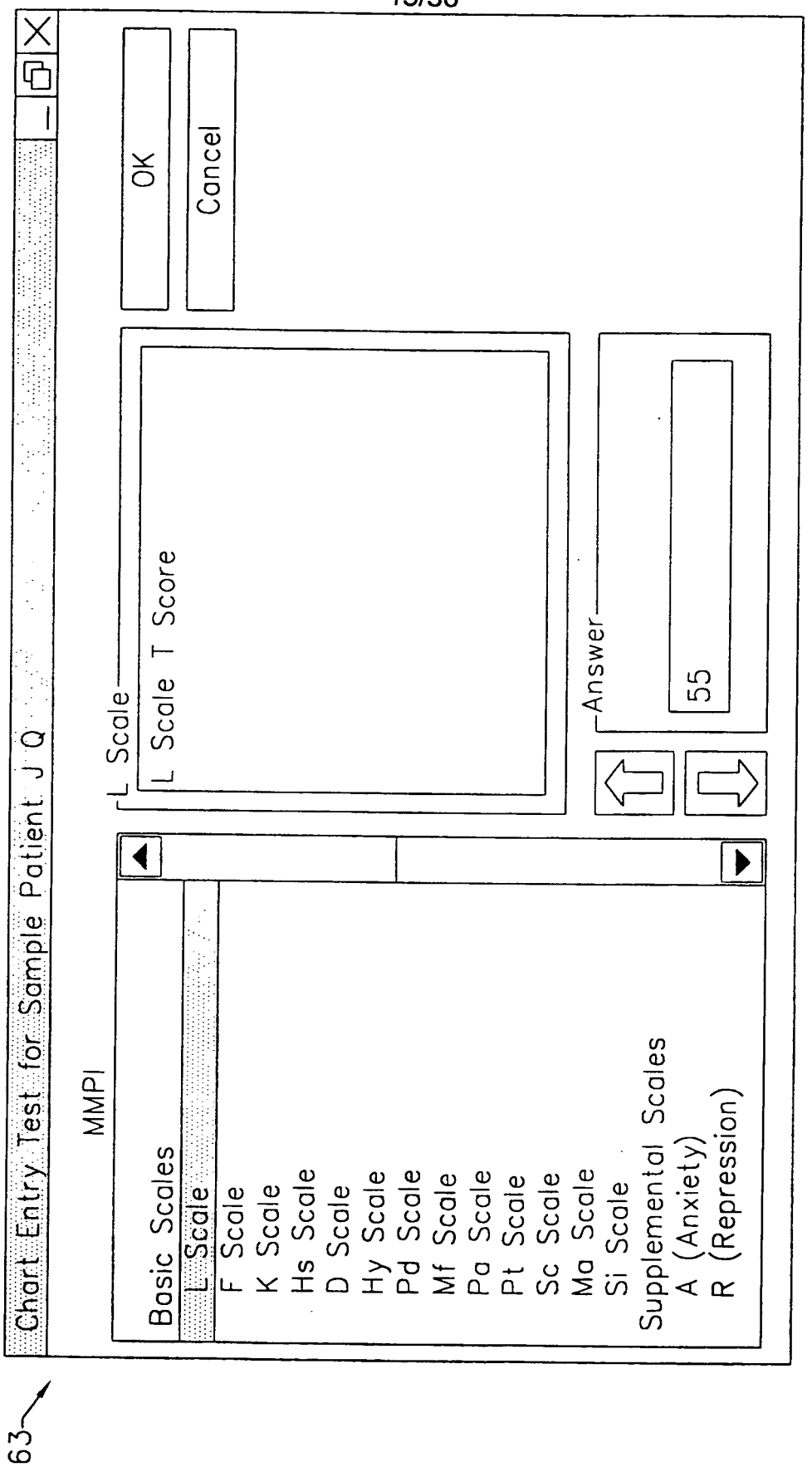


Chart Entry Test for Sample Patient J Q
OK
Cancel
L Scale
L Scale T Score
Answer
55
MMPI
Basic Scales
L Scale
F Scale
K Scale
Hs Scale
D Scale
Hy Scale
Pd Scale
Mf Scale
Pa Scale
Pt Scale
Sc Scale
Ma Scale
Si Scale
Supplemental Scales
A (Anxiety)
R (Repression)
63

FIG. 15.

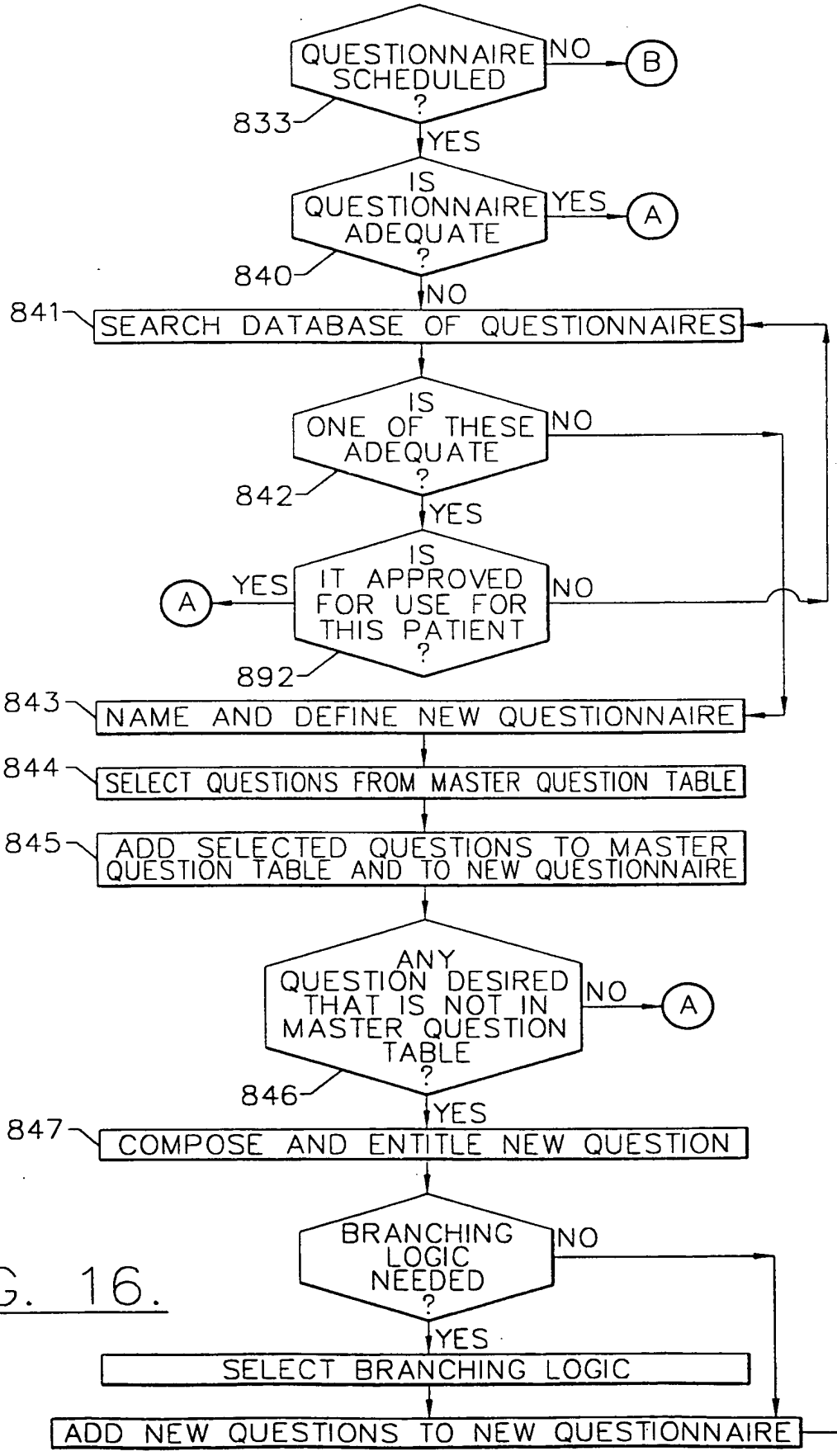

QUESTIONNAIRE SCHEDULED ?
NO
B
833
YES
IS QUESTIONNAIRE ADEQUATE ?
YES
A
840
NO
841
SEARCH DATABASE OF QUESTIONNAIRES
IS ONE OF THESE ADEQUATE ?
NO
842
YES
IS IT APPROVED FOR USE FOR THIS PATIENT ?
YES
A
NO
892
843
NAME AND DEFINE NEW QUESTIONNAIRE
844
SELECT QUESTIONS FROM MASTER QUESTION TABLE
845
ADD SELECTED QUESTIONS TO MASTER QUESTION TABLE AND TO NEW QUESTIONNAIRE
ANY QUESTION DESIRED THAT IS NOT IN MASTER QUESTION TABLE ?
NO
A
846
YES
847
COMPOSE AND ENTITLE NEW QUESTION
BRANCHING LOGIC NEEDED ?
NO
YES
SELECT BRANCHING LOGIC
ADD NEW QUESTIONS TO NEW QUESTIONNAIRE
A

FIG. 16.

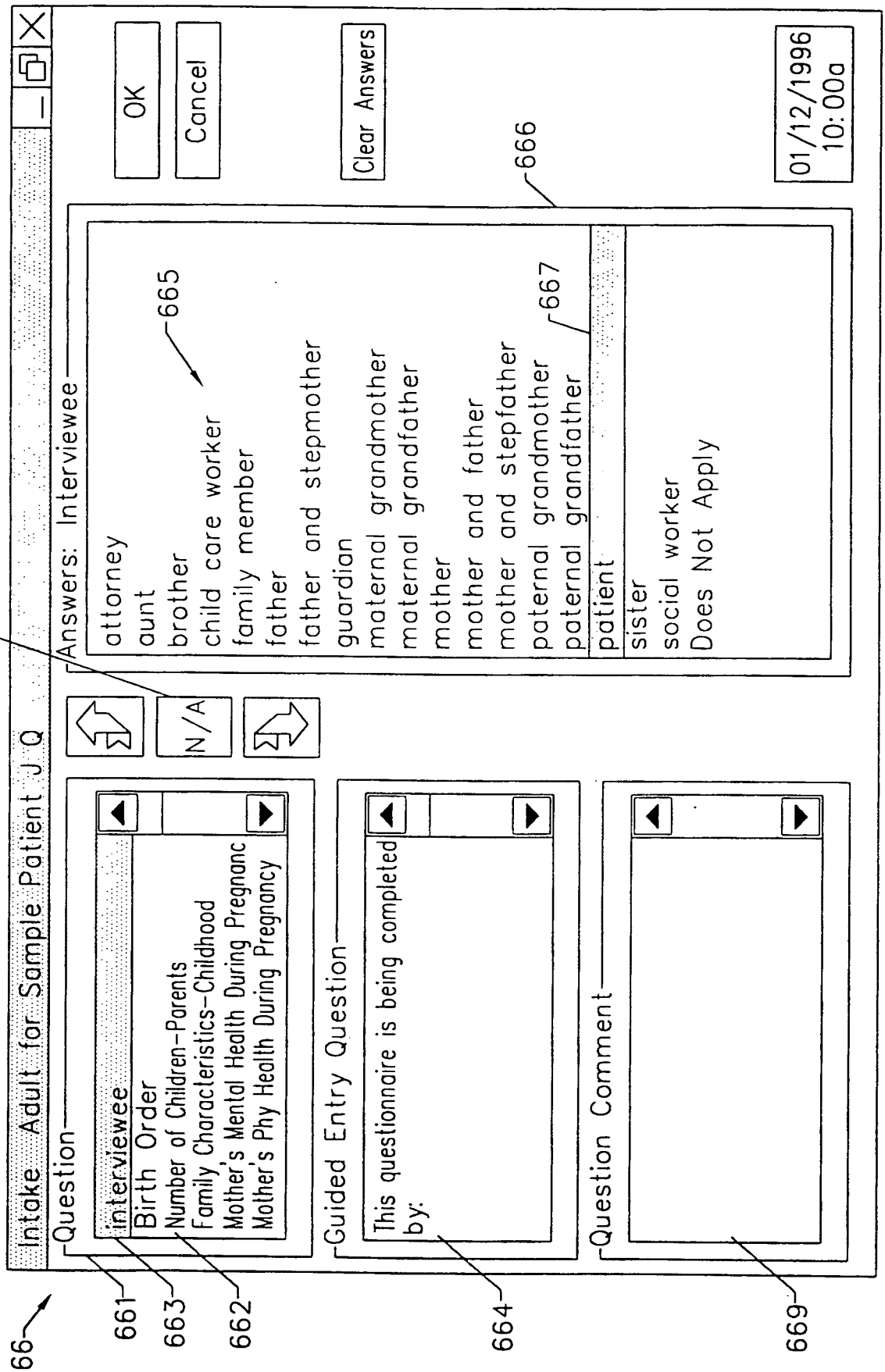

Intake Adult for Sample Patient J Q
Question
interviewee
Birth Order
Number of Children-Parents
Family Characteristics-Childhood
Mother's Mental Health During Pregnanc
Mother's Phy Health During Pregnancy
N/A
Answers: Interviewee
attorney
aunt
brother
child care worker
family member
father
father and stepmother
guardian
maternal grandmother
maternal grandfather
mother
mother and father
mother and stepfather
paternal grandmother
paternal grandfather
patient
sister
social worker
Does Not Apply
OK
Cancel
Clear Answers
01/12/1996
10:00a
Guided Entry Question
This questionnaire is being completed by:
Question Comment
66
661
663
662
664
669
665
666
667
668

FIG. 17.

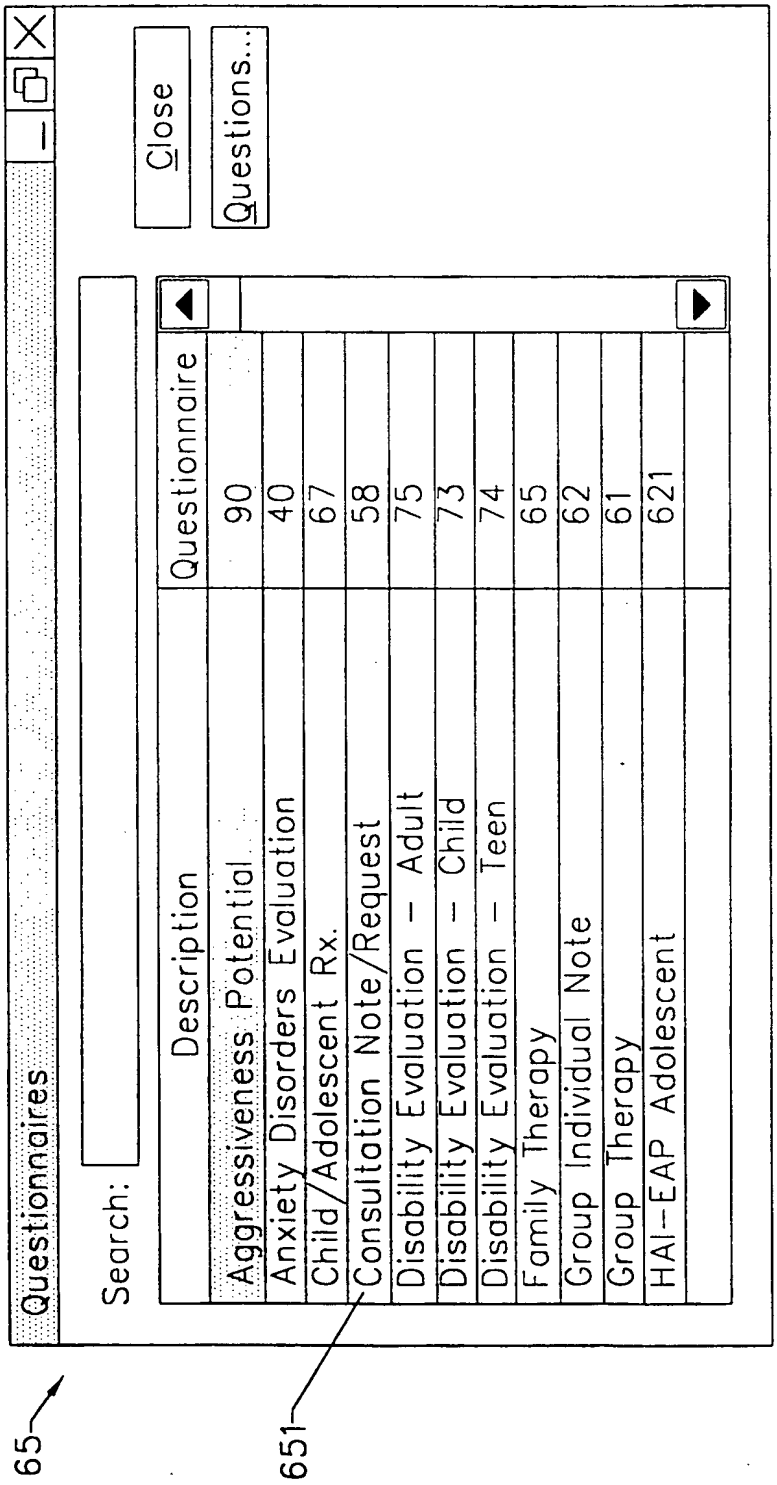

Questionnaires
Search:
Close
Questions...
Description
Questionnaire
Aggressiveness Potential
90
Anxiety Disorders Evaluation
40
Child/Adolescent Rx.
67
Consultation Note/Request
58
Disability Evaluation - Adult
75
Disability Evaluation - Child
73
Disability Evaluation - Teen
74
Family Therapy
65
Group Individual Note
62
Group Therapy
61
HAI-EAP Adolescent
621
65
651

FIG. 18.

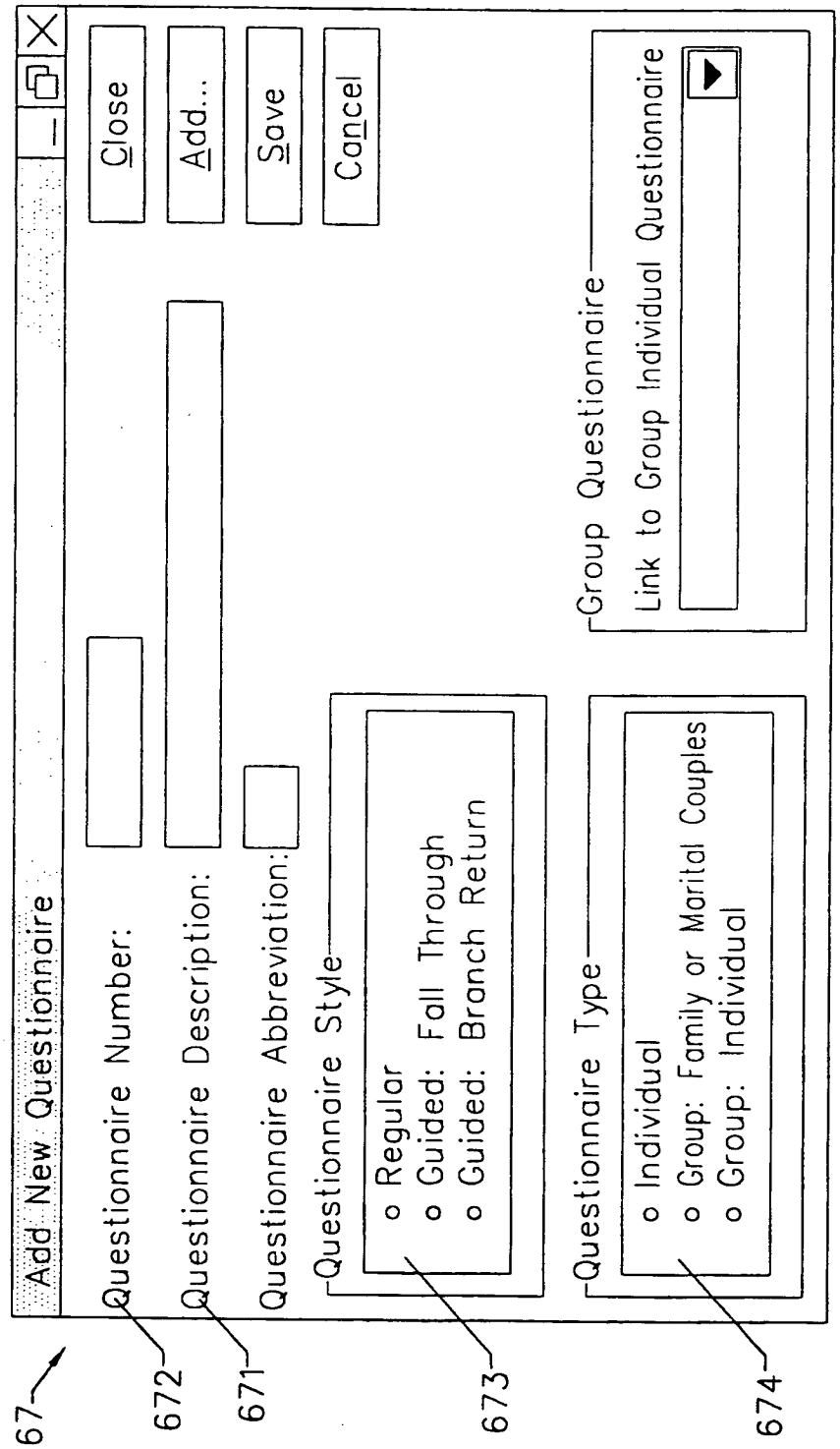

Add New Questionnaire
Close
Add...
Save
Cancel
Questionnaire Number:
Questionnaire Description:
Questionnaire Abbreviation:
Questionnaire Style
o Regular
o Guided: Fall Through
o Guided: Branch Return
Questionnaire Type
o Individual
o Group: Family or Marital Couples
o Group: Individual
Group Questionnaire
Link to Group Individual Questionnaire
67
672
671
673
674

FIG. 19.

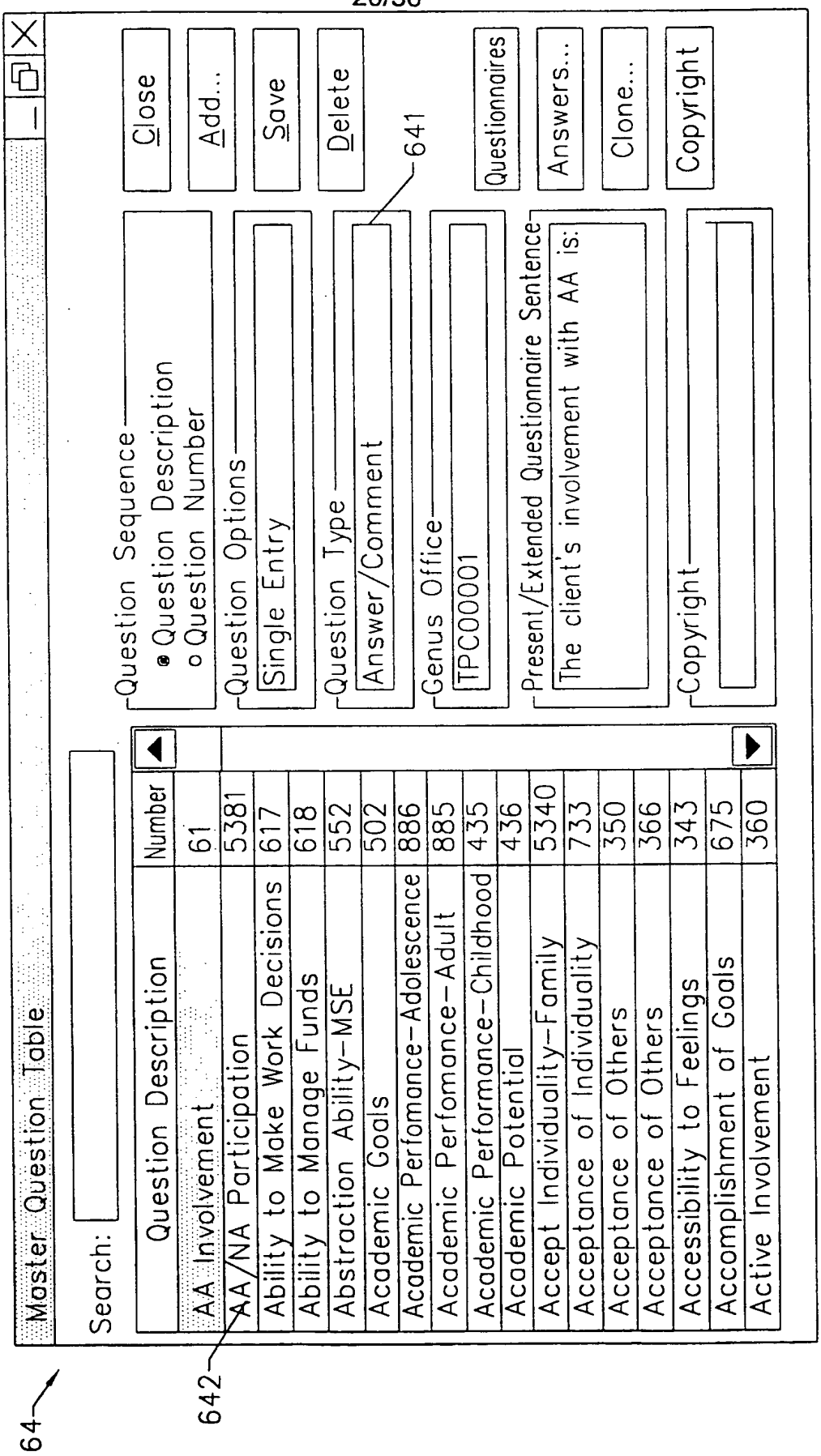

Master Question Table
Search:
Question Description
Number
AA Involvement 61
AA/NA Participation 5381
Ability to Make Work Decisions 617
Ability to Manage Funds 618
Abstraction Ability-MSE 552
Academic Goals 502
Academic Perfomance-Adolescence 886
Academic Perfomance-Adult 885
Academic Performance-Childhood 435
Academic Potential 436
Accept Individuality-Family 5340
Acceptance of Individuality 733
Acceptance of Others 350
Acceptance of Others 366
Accessibility to Feelings 343
Accomplishment of Goals 675
Active Involvement 360
Question Sequence
Question Description
Question Number
Question Options
Single Entry
Question Type
Answer/Comment
Genus Office
TPC00001
Present/Extended Questionnaire Sentence
The client's involvement with AA is:
Copyright
Close
Add...
Save
Delete
Questionnaires
Answers...
Clone...
Copyright
641
642
64

FIG. 20.

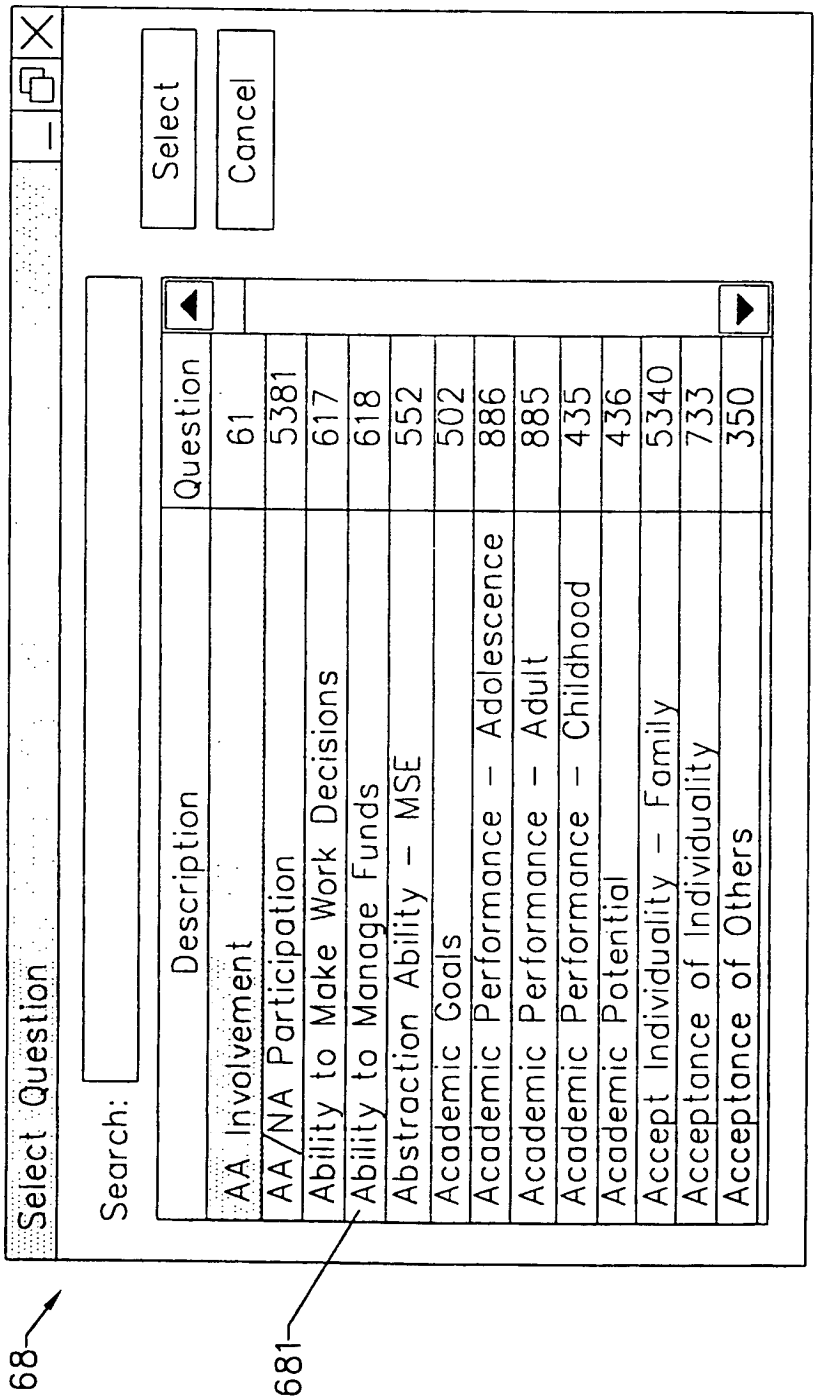

Select Question
Search:
Select
Cancel
Description
Question
AA Involvement 61
AA/NA Participation 5381
Ability to Make Work Decisions 617
Ability to Manage Funds 618
Abstraction Ability – MSE 552
Academic Goals 502
Academic Performance – Adolescence 886
Academic Performance – Adult 885
Academic Performance – Childhood 435
Academic Potential 436
Accept Individuality – Family 5340
Acceptance of Individuality 733
Acceptance of Others 350
68
681

FIG. 21.

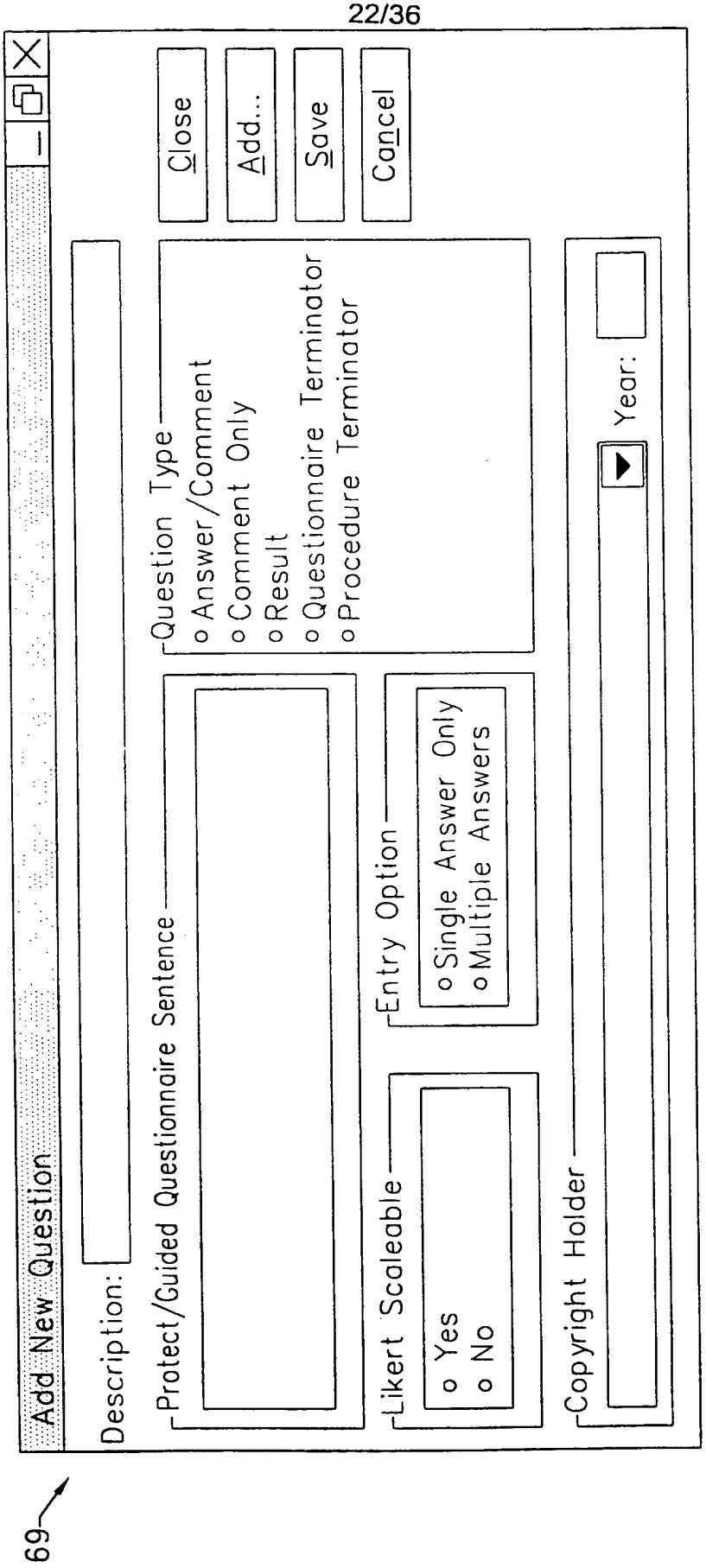

Add New Question
Description:
Protect/Guided Questionnaire Sentence
Likert Scaleable
o Yes
o No
Entry Option
o Single Answer Only
o Multiple Answers
Question Type
o Answer/Comment
o Comment Only
o Result
o Questionnaire Terminator
o Procedure Terminator
Close
Add...
Save
Cancel
Copyright Holder
Year:
69

FIG. 22.

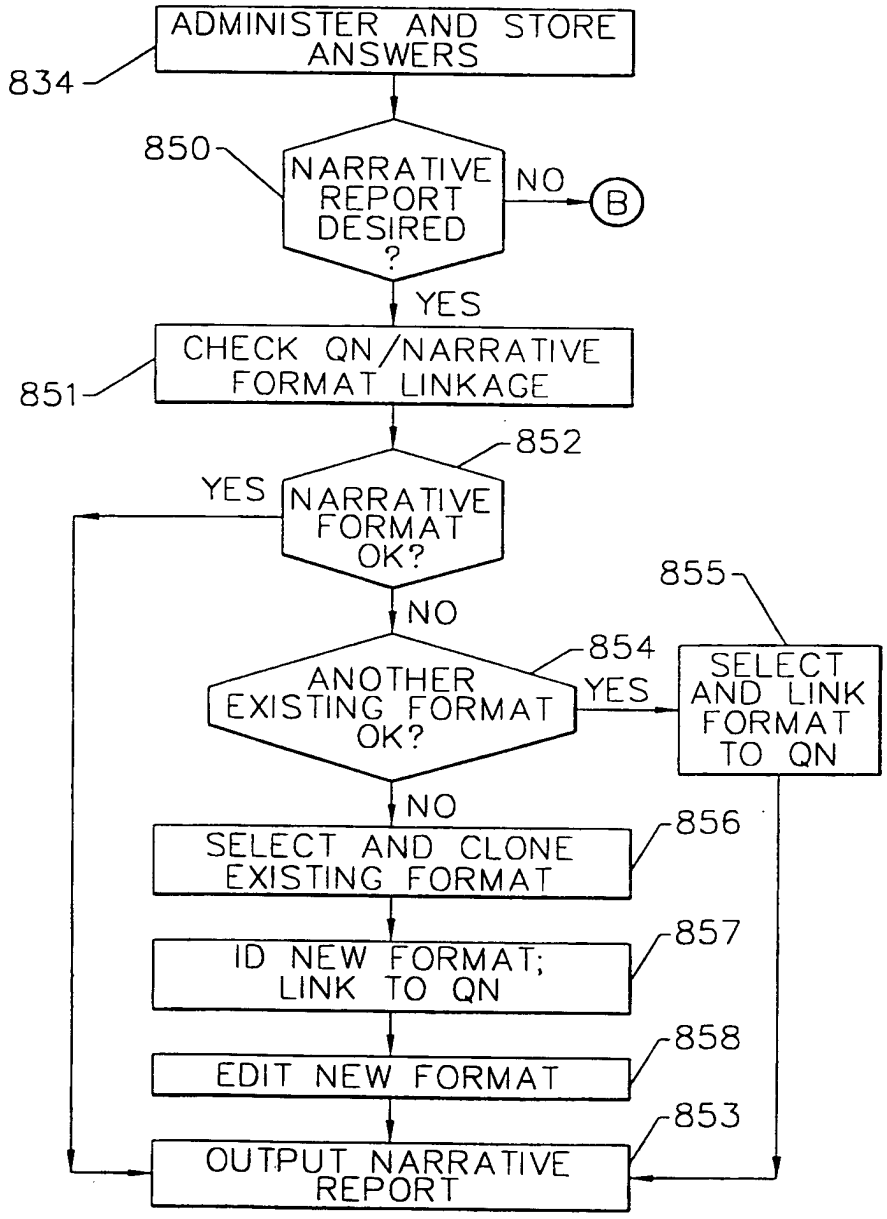

ADMINISTER AND STORE ANSWERS
834
850
NARRATIVE REPORT DESIRED ?
NO
B
YES
CHECK QN/NARRATIVE FORMAT LINKAGE
851
852
YES
NARRATIVE FORMAT OK?
NO
855
854
ANOTHER EXISTING FORMAT OK?
YES
SELECT AND LINK FORMAT TO QN
NO
SELECT AND CLONE EXISTING FORMAT
856
ID NEW FORMAT; LINK TO QN
857
EDIT NEW FORMAT
858
OUTPUT NARRATIVE REPORT
853

FIG. 23.

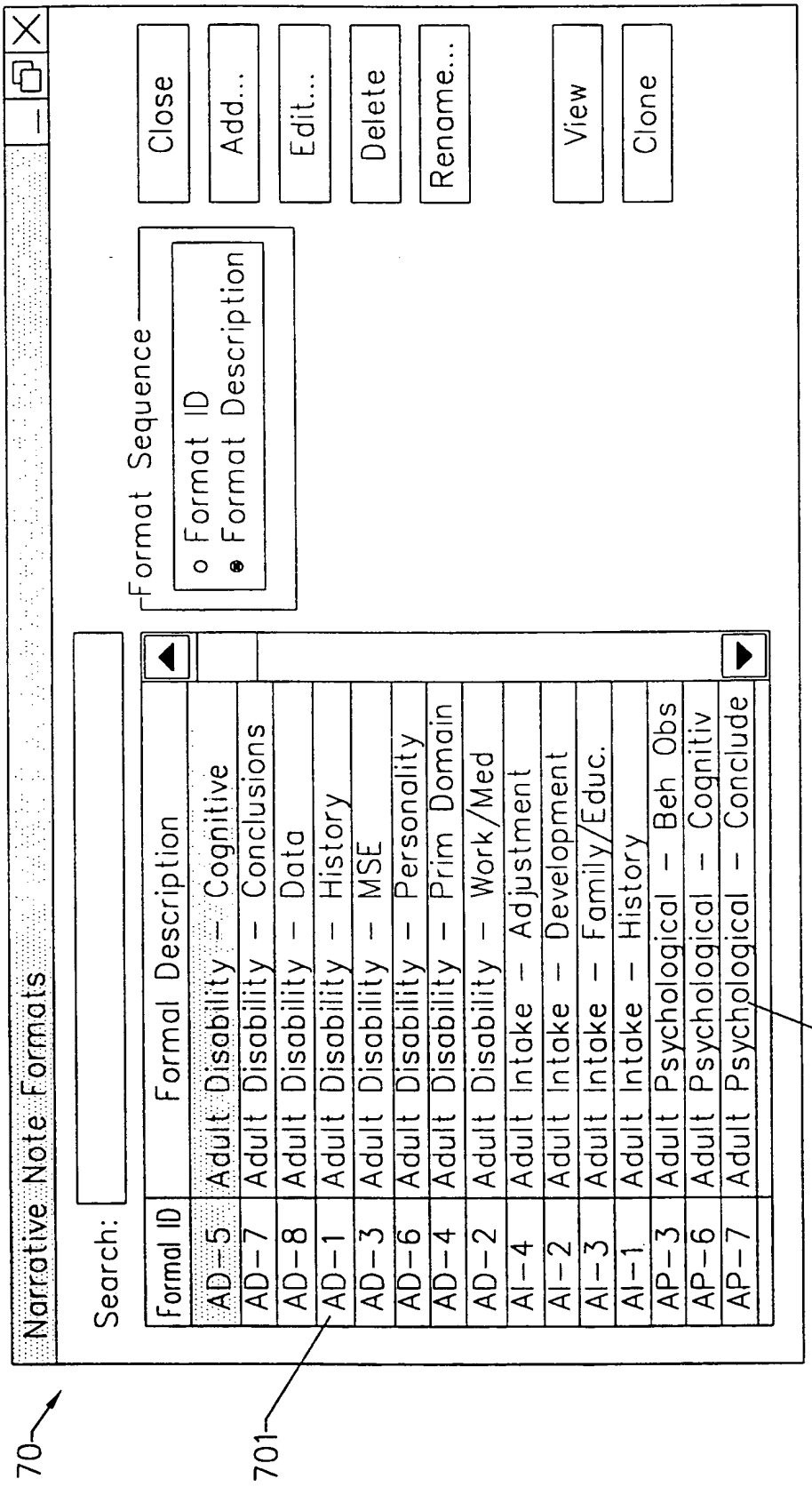

Narrative Note Formats
Search:
Formal ID
Formal Description
AD-5 Adult Disability - Cognitive
AD-7 Adult Disability - Conclusions
AD-8 Adult Disability - Data
AD-1 Adult Disability - History
AD-3 Adult Disability - MSE
AD-6 Adult Disability - Personality
AD-4 Adult Disability - Prim Domain
AD-2 Adult Disability - Work/Med
AI-4 Adult Intake - Adjustment
AI-2 Adult Intake - Development
AI-3 Adult Intake - Family/Educ.
AI-1 Adult Intake - History
AP-3 Adult Psychological - Beh Obs
AP-6 Adult Psychological - Cognitiv
AP-7 Adult Psychological - Conclude
Format Sequence
o Format ID
• Format Description
Close
Add...
Edit...
Delete
Rename...
View
Clone
70
701
702

FIG. 24.

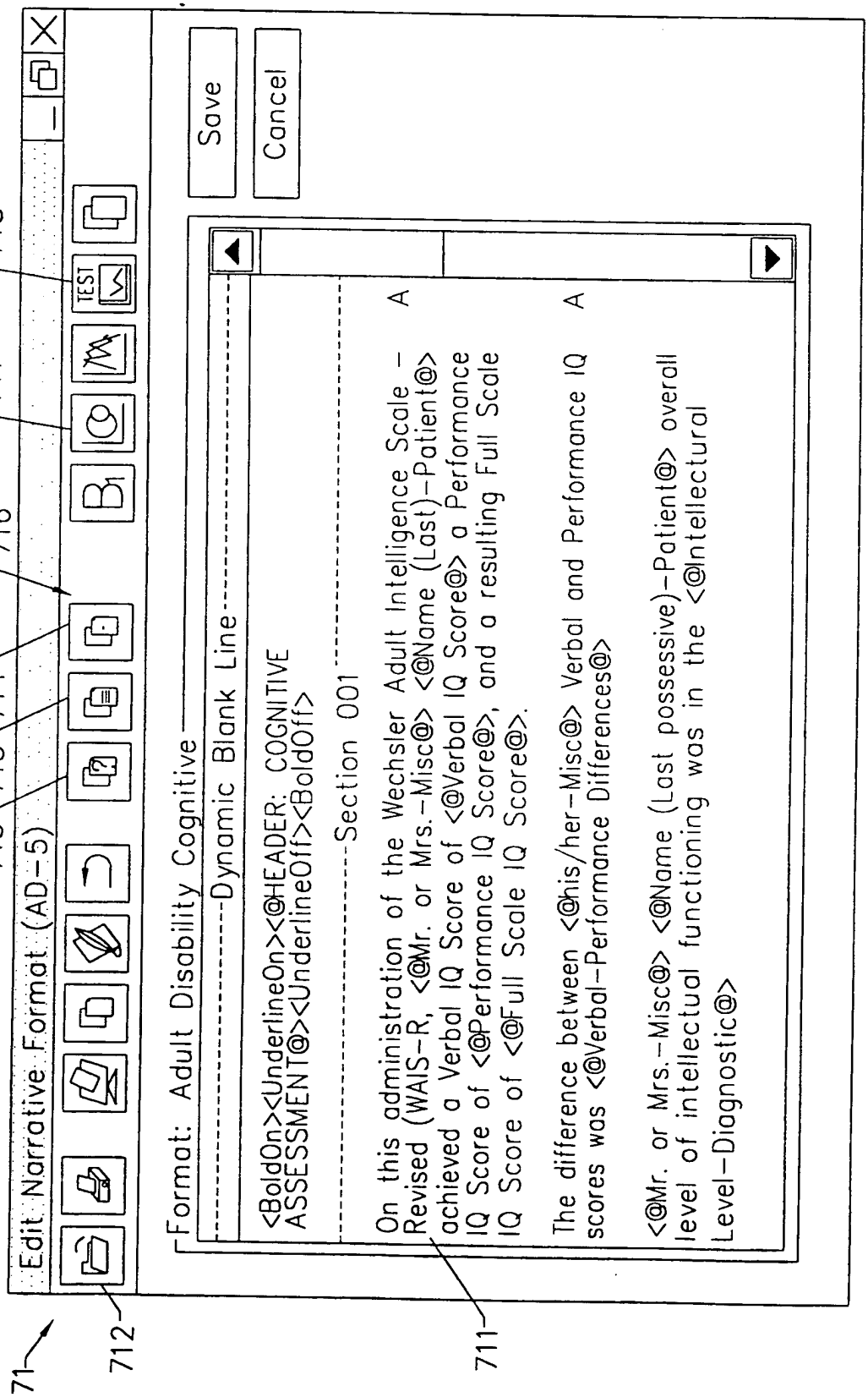

Edit Narrative Format (AD-5)
Format: Adult Disability Cognitive
Dynamic Blank Line
<BoldOn><UnderlineOn><@HEADER: COGNITIVE ASSESSMENT@><UnderlineOff><BoldOff>
Section 001
On this administration of the Wechsler Adult Intelligence Scale - Revised (WAIS-R, <@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> achieved a Verbal IQ Score of <@Verbal IQ Score@> a Performance IQ Score of <@Performance IQ Score@>, and a resulting Full Scale IQ Score of <@Full Scale IQ Score@>.
The difference between <@his/her-Misc@> Verbal and Performance IQ scores was <@Verbal-Performance Differences@>
<@Mr. or Mrs.-Misc@> <@Name (Last possessive)-Patient@> overall level of intellectual functioning was in the <@Intellectual Level-Diagnostic@>
Save
Cancel
TEST
71
712
711
715
713
714
716
717
718

FIG. 25.

Behavioral Health South, P.C.

Narrative: MC-SR - Managed Care - Session Review

----------Permanent Blank Line----------
Center Line-><UnderlineOn><BoldOn>MANAGED CARE SESSION REVIEW<BoldOff><UnerlineOff>
----------Permanent Blank Line----------
----------Permanent Blank Line----------

Name	<@Name (First I. Last)-Patient@>
SS Number	<@Social Security Number-Patient@>
Date of Birth	<@Date of Birth-Patient@>
Date of Evaluation	<@Chart Note Date-Misc@>
Age	<@Age-Patient@>
Sex	<@Sex (male/female)-Patient@>
Marital Status	<@Marital Status-Patient@>
Chart Number	<@Chart #-Patient@>
Chart Entered By	<@Chart Entered By-Misc@>
Diagnoses	<@Diagnostic Code I (Header)-Patient@>
	<@Diagnostic Code II (Header)-Patient@>
	<@Diagnostic Code III (Header)-Patient@>
	<@Diagnostic Code IV (Header)-Patient@>
	<@Diagnostic Code V (Header)-Patient@>

----------Permanent Blank Line----------
----------Section 001----------
Assessment was based on <@Assessment@>.

The general treatment approaches utilized during this session included <@Intervention@>.

Specific techniques included <@Techniques@>.

A consultation was completed on <@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> regarding <@Consultation Focus@> by <@his/her-Misc@> <@Consultee@>.

261 ----------Section 002----------
<@Mr. or Mrs.-Misc@> <@Name (Last possessive)-Patient@> attitude was <@Attitude - Client@>.

The content of the session was focused on <@Content - Session@>

Subjective distress was assessed as <@Subjective Distress@>.

<@Personality Organization@>.

<@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> is experiencing <@Cognitive Impairment@> in cognitive functioning.

<@He/She-Misc@> demonstrated <@Interpersonal Impairment@> in interpersonal relationships, <@Emotional Impairment@>, and

FIG. 26A.

Behavioral Health South, P.C.

Narrative: MC-SR - Managed Care - Session Review

<@Level of Job Impairment@>.
<@He/She-Misc@> <@Global Psych Adjustment@>.
----------Section 003----------
<@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> <@Responsiveness to Therapy@>

<@Global Improvement@>.

<@He/She-Misc@> <@Prognosis/Continued Treatment@>.

Issues to be addressed during the next session include <@Session Prompt@>.

<@Mr. or Mrs.-Misc@> <@Name (Last)-Patient@> <@Return Appointment - Singular@>
----------Section 004----------
<@Chart Note Comment-Misc@>
----------Section 005----------
<@BEHAVIORS/GOAL/LAST5@>
----------Section 006----------
----------Permanent Blank Line----------
----------Permanent Blank Line----------
----------Permanent Blank Line----------
----------Permanent Blank Line----------
<@Signature Line Misc@>
<@Name (First I. Last, Suffix)-Provider@>
<@Professional Title-Provider@>

FIG. 26B.

Behavioral Health South, P.C.

MANAGED CARE SESSION REVIEW

Name	John Q. Sample–Patient
SS Number	111–11–1111
Date of Birth	September 4, 1950
Date of Evaluation	February 3, 1996 10:00a
Age	45
Sex	male
Marital Status	married
Chart Number	000001
Chart Entered By	Administrator,
Diagnoses	Axis I 296.22 Major Depressive Disorder, Single Episode, Moderate (DSM)
	Axis I 300.23 Social Phobia (DSM)
	Axis I 305.00 Alcohol Abuse (DSM)
	Axis II 301.4 Obsessive–Compulsive Personality Disorder (DSM)
	Axis III 401.9 Hypertension, essential (DSM)
	Axis IV 000.04 Occupational problems (DSM)
	Axis V 50.00 Serious symptoms OR impairment in functioning (DSM)

Assessment was based on an in–session observation. The general treatment approaches utilized during this session included brief psychodynamic therapy.

271 Dr. Sample–Patient's attitude was overly solicitous, provocative and resistive. The content of the session was focused on fears/insecurities, grief/loss, noncompliant behavior and social concerns. Subjective distress was assessed as moderate. Personality structure was intact and functional. Dr. Sample–Patient is experiencing mild impairment in cognitive functioning. He demonstrated mild impairment in interpersonal relationships, minimal emotional impairment, and mild impairment in job performance. He presents as generally well adjusted.

Dr. Sample–Patient is interested and responsive to therapy. Overall level of improvement was major. He will likely benefit from continued treatment. Issues to be addressed during the next session include follow–up with the family and review of the marital situation. Dr. Sample–Patient was scheduled to return in two weeks.

Target Behaviors

Problem	Goal	Rating	Session

FIG. 27A.

Behavioral Health South, P.C.

Anxiety (S)	2	3	02/03/1996
		4	01/31/1996
		5	01/26/1996
		4	01/19/1996
		4	01/12/1996
Depression (S)	2	3	02/03/1996
		5	01/31/1996
		4	01/26/1996
		5	01/19/1996
		5	01/12/1996
Chemical Abuse (S)	1	4	02/03/1996
		5	01/31/1996
		5	01/26/1996
		5	01/19/1996
		5	01/12/1996

not on file
not on file

FIG. 27B. Sample–Patient J Q

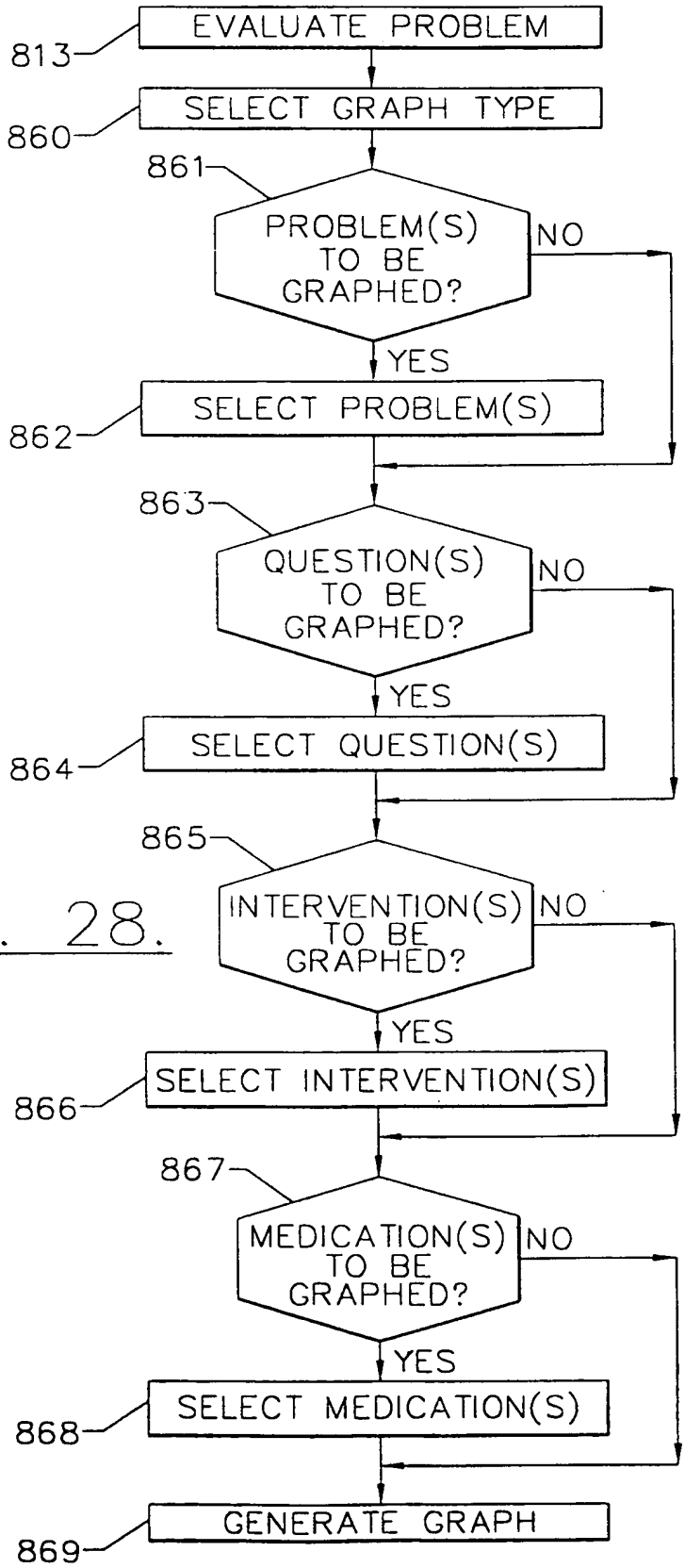

EVALUATE PROBLEM
813
SELECT GRAPH TYPE
860
861
PROBLEM(S) TO BE GRAPHED?
NO
YES
SELECT PROBLEM(S)
862
863
QUESTION(S) TO BE GRAPHED?
NO
YES
SELECT QUESTION(S)
864
865
INTERVENTION(S) TO BE GRAPHED?
NO
YES
SELECT INTERVENTION(S)
866
867
MEDICATION(S) TO BE GRAPHED?
NO
YES
SELECT MEDICATION(S)
868
GENERATE GRAPH
869

FIG. 28.

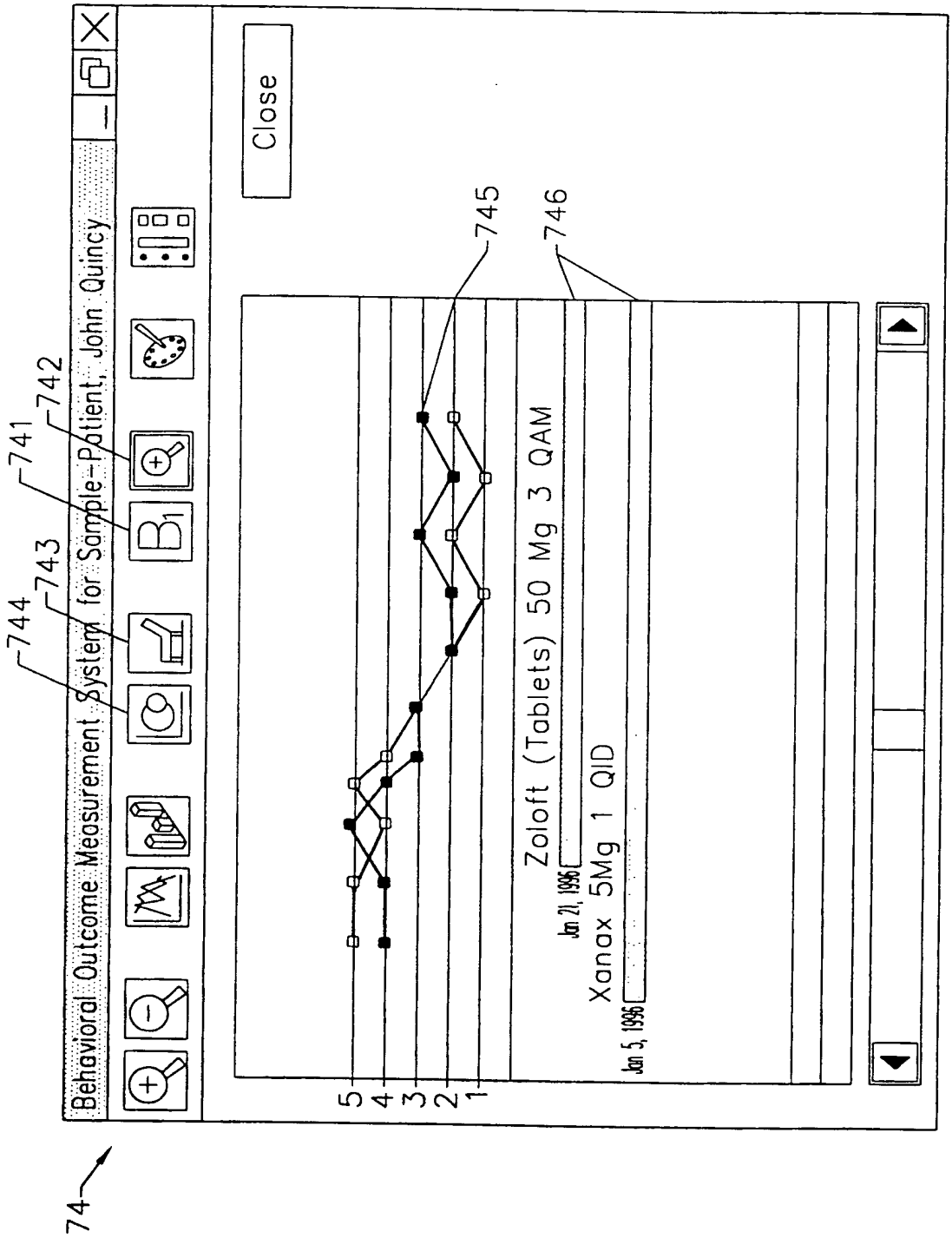

Behavioral Outcome Measurement System for Sample-Patient, John Quincy
Close
741
742
743
744
745
746
74
Zoloft (Tablets) 50 Mg 3 QAM
Jan 21, 1996
Xanax 5Mg 1 QID
Jan 5, 1996
5
4
3
2
1

FIG. 29.

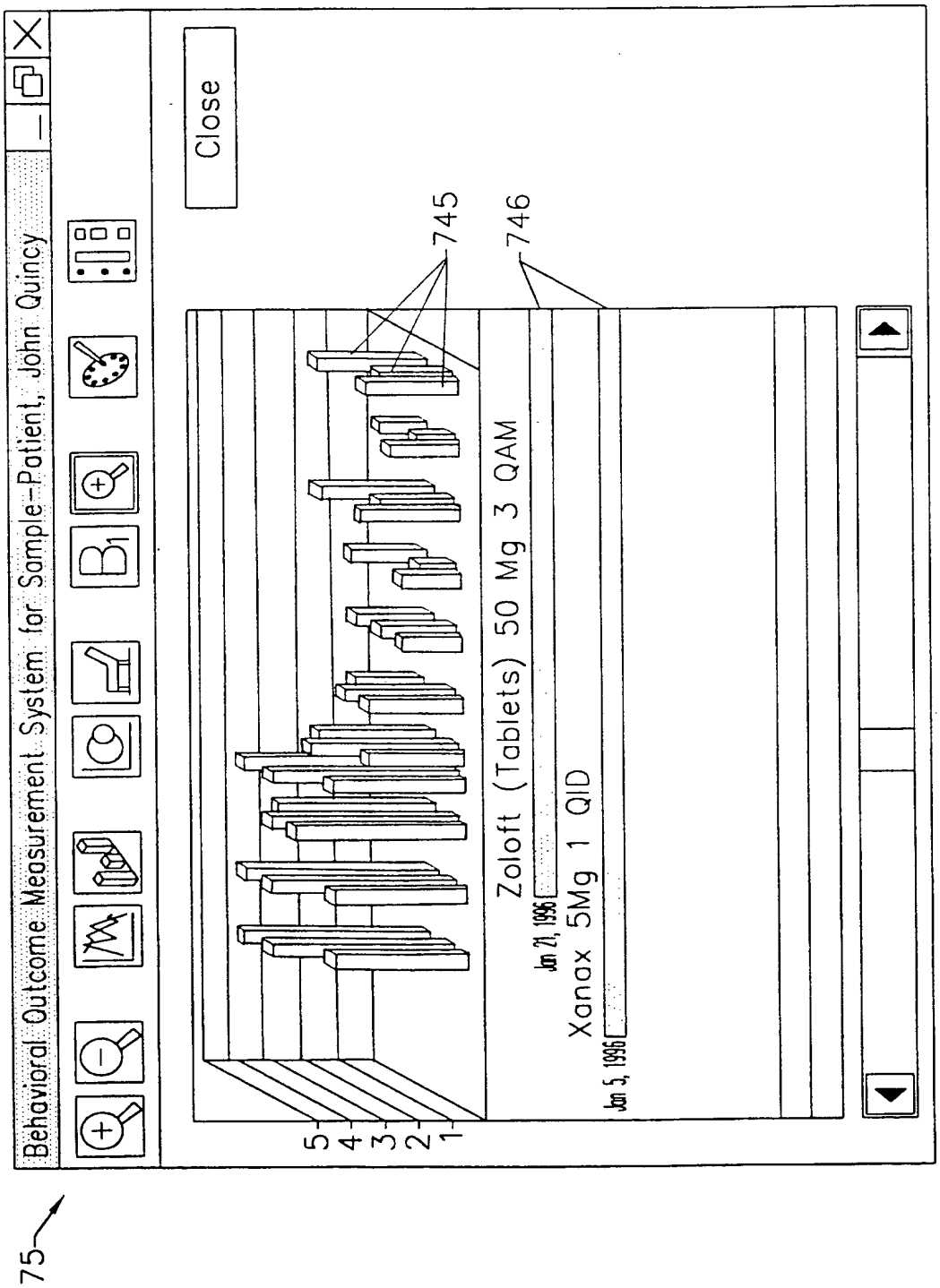

Behavioral Outcome Measurement System for Sample-Patient, John Quincy
Close
745
746
Zoloft (Tablets) 50 Mg 3 QAM
Jan 21, 1996
Xanax 5Mg 1 QID
Jan 5, 1996
5
4
3
2
1
75

FIG. 30.

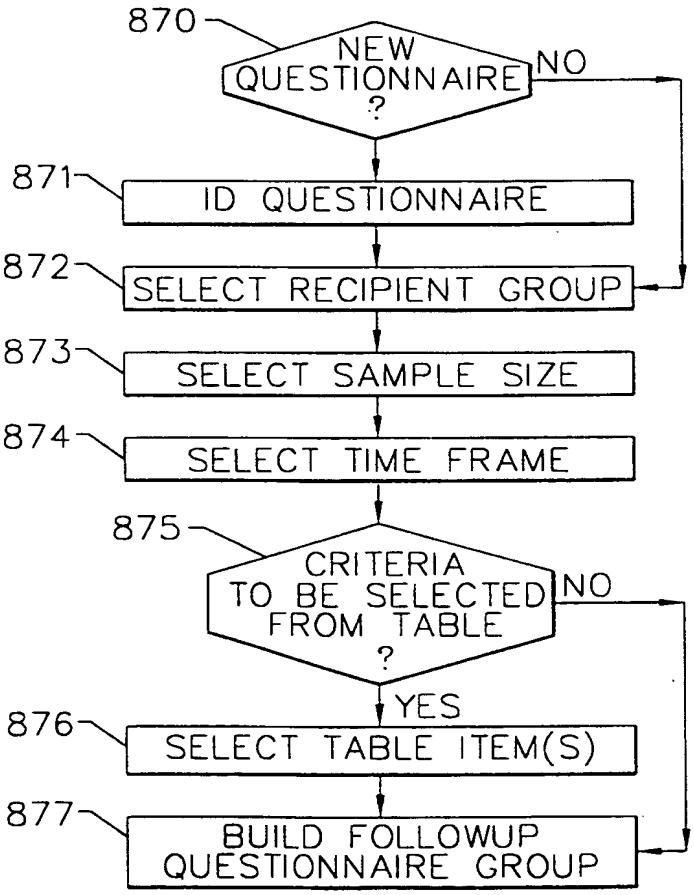

870
NEW QUESTIONNAIRE ?
NO
871
ID QUESTIONNAIRE
872
SELECT RECIPIENT GROUP
873
SELECT SAMPLE SIZE
874
SELECT TIME FRAME
875
CRITERIA TO BE SELECTED FROM TABLE ?
NO
YES
876
SELECT TABLE ITEM(S)
877
BUILD FOLLOWUP QUESTIONNAIRE GROUP

FIG. 31.

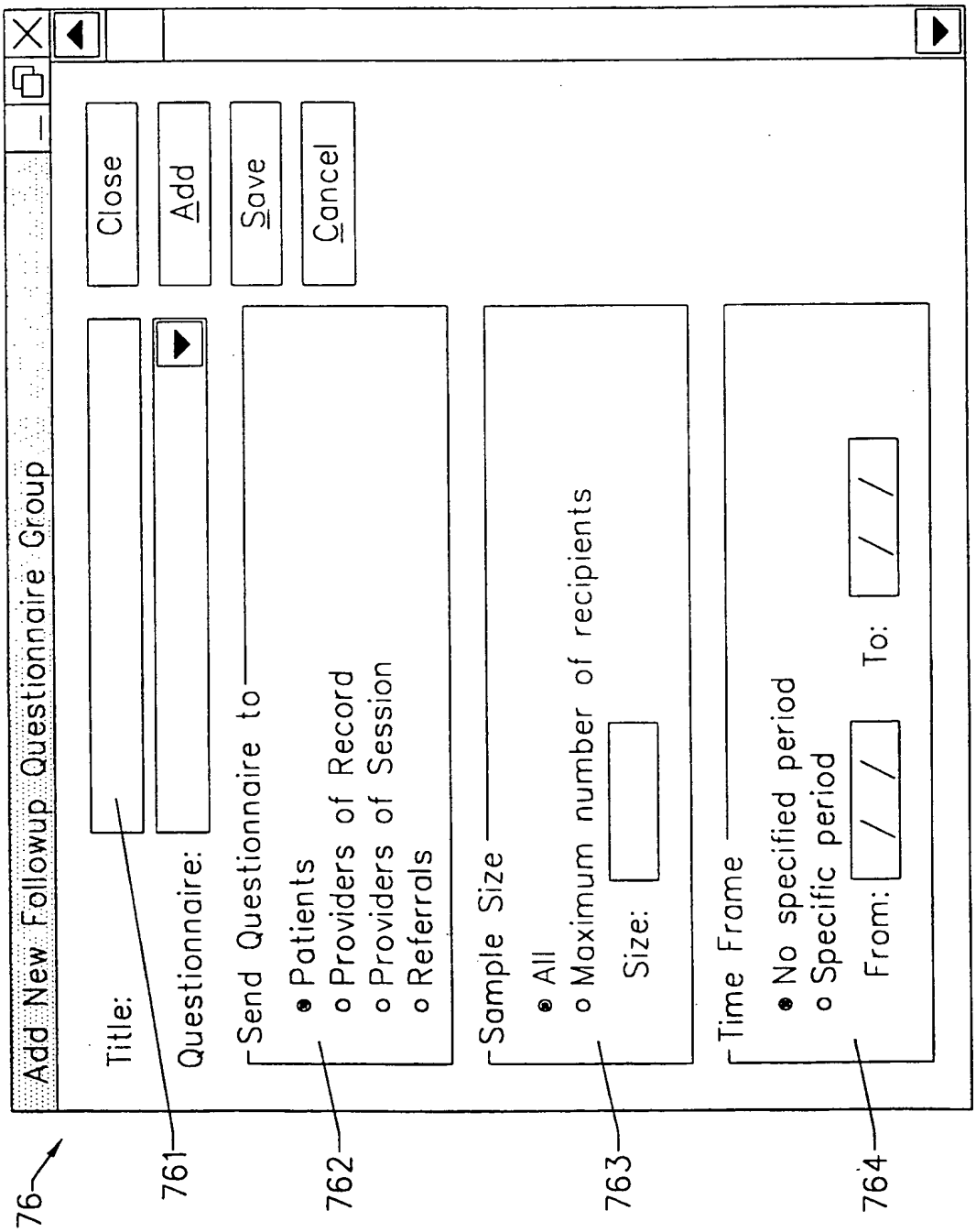

Add New Followup Questionnaire Group
Close
Add
Save
Cancel
Title:
Questionnaire:
Send Questionnaire to
Patients
Providers of Record
Providers of Session
Referrals
Sample Size
All
Maximum number of recipients
Size:
Time Frame
No specified period
Specific period
From:
To:
76
761
762
763
764

FIG. 32.

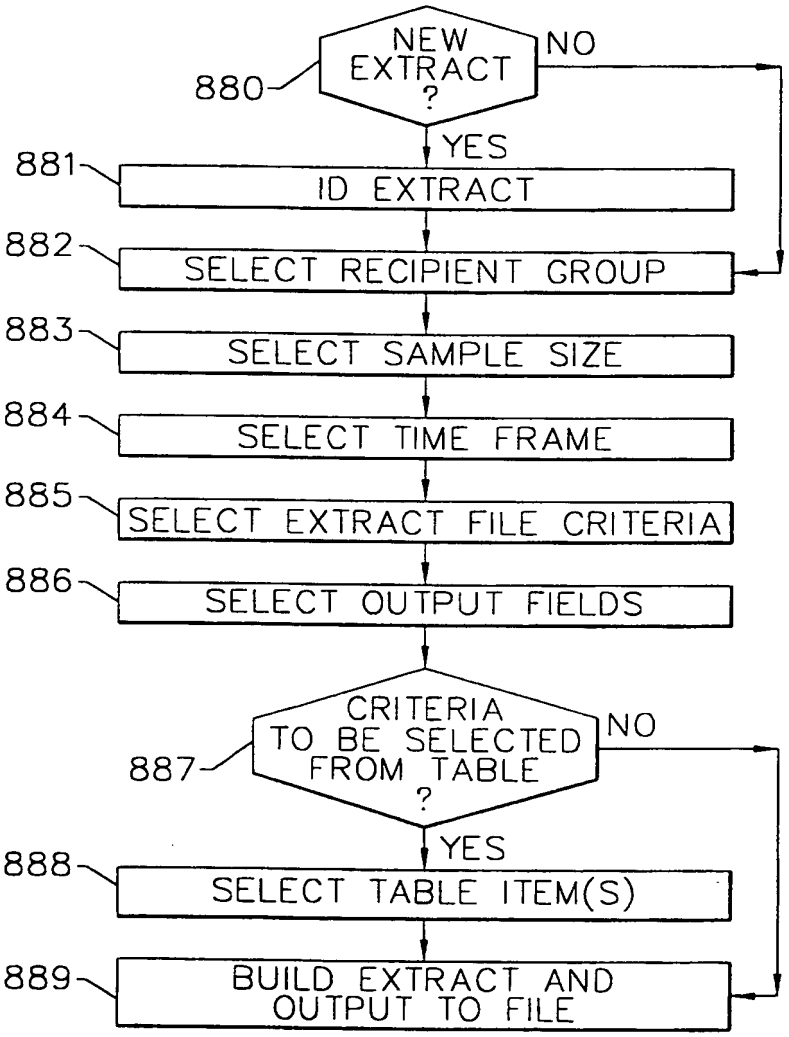
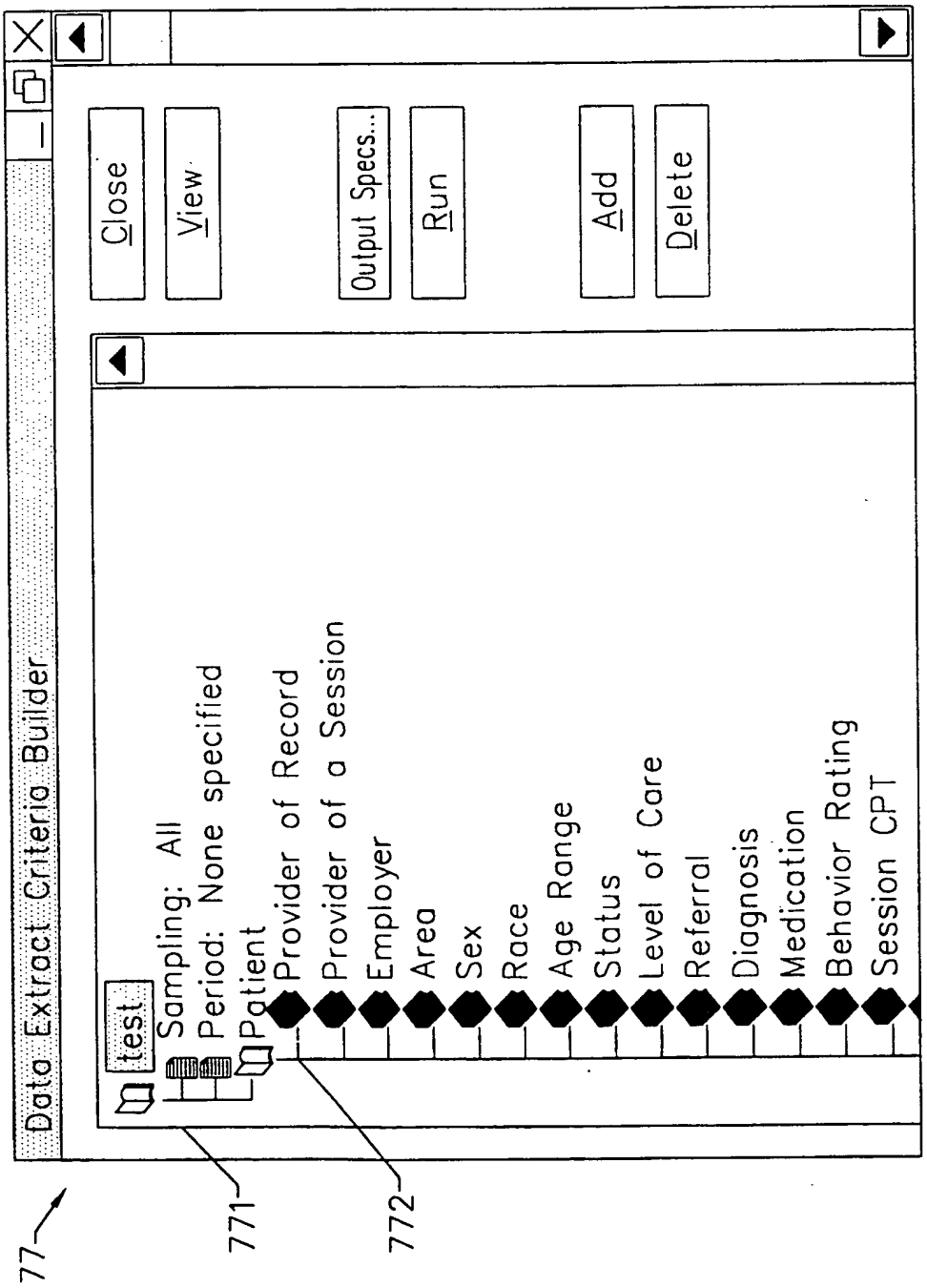

NEW EXTRACT ?
NO
880
YES
881
ID EXTRACT
882
SELECT RECIPIENT GROUP
883
SELECT SAMPLE SIZE
884
SELECT TIME FRAME
885
SELECT EXTRACT FILE CRITERIA
886
SELECT OUTPUT FIELDS
CRITERIA TO BE SELECTED FROM TABLE ?
NO
887
YES
888
SELECT TABLE ITEM(S)
889
BUILD EXTRACT AND OUTPUT TO FILE

FIG. 33.

FIG. 34.


Data Extract Criteria Builder
test
Sampling: All
Period: None specified
Patient
Provider of Record
Provider of a Session
Employer
Area
Sex
Race
Age Range
Status
Level of Care
Referral
Diagnosis
Medication
Behavior Rating
Session CPT
Close
View
Output Specs...
Run
Add
Delete
77
771
772

INTERNATIONAL SEARCH REPORT

Inte nal Application No
PCT/US 98/02655

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F19/00

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 435 324 A (BRILL PETER L) 25 July 1995 cited in the application	1-9
Y	see column 2, line 15 - column 3, line 30 see column 5, line 18 - column 10, line 39; figures 1-10	10,14, 18,20
Y	WO 91 06917 A (GARCIA ANGELA M) 16 May 1991 see abstract	10,14, 18,20
A	WO 95 32480 A (SANDERS MATTHEW H ;ENACT PRODUCTS INC (US); TACKLIND CHRISTOPHER A) 30 November 1995 see abstract see page 6, line 34 - page 7, line 11	10,14, 18,20

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 June 1998	06/07/1998

Name and mailing address of the ISA	Authorized officer
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1

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INTERNATIONAL SEARCH REPORT

Int[redacted]nal Application No
PCT[redacted]98/02655

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 327 341 A (WHALEN ET AL) 5 July 1994 see column 2, line 61 - column 4, line 9	10,14, 18,20
A	EDLIN M: "Behavioral health software attracts attention" HEALTH MANAGEMENT TECHNOLOGY, DEC. 1996, ARGUS INTEGRATED MEDIA, USA, vol. 17, no. 13, ISSN 0745-1075, pages 34-37, XP002068699 see page 35, middle column, line 18 - page 37, left-hand column, line 28; figure PAGE34	1,7

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte onal Application No
PCT/US 98/02655

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		EP 0656761 A	14-06-1995
		WO 9404072 A	03-03-1994
WO 9106917 A	16-05-1991	US 5065315 A	12-11-1991
		AU 6622090 A	31-05-1991
		CA 2067747 A	25-04-1991
		EP 0497832 A	12-08-1992
WO 9532480 A	30-11-1995	US 5704366 A	06-01-1998
		AU 2646395 A	18-12-1995
		CA 2190283 A	30-11-1995
		EP 0765507 A	02-04-1997
		JP 10500598 T	20-01-1998
		US 5626144 A	06-05-1997
		US 5549117 A	27-08-1996
		US 5732709 A	31-03-1998
US 5327341 A	05-07-1994	NONE	

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